

# FLIGHT

The  
AIRCRAFT  
ENGINEER  
&  
AIRSHIPS

First Aeronautical Weekly in the World. Founded January, 1909

Founder and Editor : STANLEY SPOONER

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## Flight

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### " FLIGHT " PHOTOGRAPHS.

To those desirous of obtaining copies of "Flight" Photographs, these can be supplied, enlarged or otherwise, upon application to Photo. Department, 36, Great Queen Street, W.C.2

### DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list —

1928

- Mar. 15 .... " Flying - Boat Maintenance." Flt.-Lient.  
B. C. H. Cross, before R.Ae.S. & Inst. Ae.E.  
Mar. 15 .... Aero Golfing Soc.—Winter Meeting, Sir Samuel  
Instone Challenge Cup  
Mar. 24 .... Rugby, R.A.F. v. Army, at Twickenham  
Mar. 28-  
Apl. 4 .... Exhibition of Light Aeroplanes, Folkestone  
Drill Hall.  
Apl. 7 .... Cinque Ports Flying Club Demonstration,  
Lympne  
Apl. 8-9 .... Aerial Display, Suffolk Aeroplane Club, Hadleigh.  
Apl. 12 .... "Some Aspects of the Development of the  
Slot," Mr. G. R. Volkert, before R.Ae.S. &  
Inst.Ae.E.

### INDEX FOR VOL. XIX.

The Index for Vol. xix of "Flight" (January to December, 1927) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C.2. Price 1s. per copy (1s. 1d. post free).

## EDITORIAL COMMENT



As we are preparing to go to press with this week's issue of FLIGHT, an attempt is awaited to establish a new world's speed record over the 3 kilometres straight-line course recently marked out over Southampton Water. At the moment it would be futile to express a definite opinion as to the chances of Flt.-Lient. S. M. Kinkead, D.S.O., D.S.C., D.F.C., to beat the splendid record of 297 m.p.h., established by the Italian pilot, Major de Bernardi, shortly after the holding of the Schneider Seaplane Trophy race at Venice last year. That the Supermarine S.5 is an extremely fast machine there is no doubt. Whether it is fast enough to beat by a good margin the speed of the Macchi remains to be seen. Personally, we believe the British machine to be well able to beat the record. The Napier racing engine was giving something like 875 h.p. in the Schneider race. For the very short duration required to establish a speed record, it is to be assumed that it will be possible, if necessary, to take a good deal more power from it without fear of a breakdown. The actual machine used by Kinkead was one of the three S.5's sent out to Venice, but was never flown there. How it compares with the other two S.5's is therefore not known. It is no uncommon thing for one machine out of a batch to be, for some obscure reason, quite a good deal faster than the rest of the batch, and so there is the possibility that something of the sort may happen in this instance. On the other hand, the reverse may be the case. Actual tests alone can settle this definitely.

Shortly after the Schneider race, a good deal was made in certain quarters of the importance of being

the first to fly at more than 300 miles per hour. While there is, doubtless, a good deal in this contention it should not be forgotten that the only two nations who use the miles per hour units are Great Britain and the United States of America. The rest of the world uses kilometres per hour. Now, in order to beat de Bernardi's record, Kinkead will have to average at least 302 m.p.h., and thus if he establishes a new record he will automatically have been the first to reach and exceed 300 m.p.h. But 302 m.p.h. is equivalent to approximately 486 km./hour. Thus there is not really so very far to go to reach the 500 km./hour mark. True, it is the last few kilometres per hour that are the most difficult to get, but there is at any rate a possibility that Kinkead may succeed not only in being the first to reach 300 m.p.h., but also the first to touch 500 km./hour. Should he succeed in doing this, it will, we venture to think, be an even greater accomplishment than merely establishing a new world's record. Let us not forget that these records are officially accepted in the kilometre units only, and that a large percentage of the civilised world habitually employs these units. Thus, whereas to these nations 300 m.p.h. conveys very little, 500 km. per hour is something which they can appreciate at once. We call attention to the fact, because we feel that it is one of some psychological importance.

Concerning the actual record flight, and the course marked out over Southampton Water, this conforms, of course, to the regulations of the F.A.I., consisting of two sets of posts, 3 km. apart, with further posts  $\frac{1}{2}$ -km. beyond each end of the actual speed course. The latter posts are employed because the machine must be in horizontal flight 500 m. before entering the course, and must remain in horizontal flight 500 m. beyond the far end of the course. Calling the post at the starting end No. 1, and that at the other end No. 2, the procedure is as follows: The machine approaches post No. 1 in level flight and flies along the speed course, making a turn beyond the far end and re-entering the speed course again from the No. 2 end. The time-keeper at post No. 1 times the machine from the time it passes No. 1 post on the outward flight until it passes it again on the return. The second time-keeper, who is stationed at post No. 2, times the machine from passing No. 2 on the outward lap until passing No. 2 again on the return lap; in other words, he takes the time of the turn at the far end. By subtracting No. 2's time from No. 1's, the average time of the double flight along the speed course, in opposite directions, is obtained. The procedure is then repeated, as the regulations require that two flights in each direction must be made. At the speed at which Kinkead will be flying a lap will take about 20 seconds!



#### **Congratulations for Far East Flight, R.A.F.**

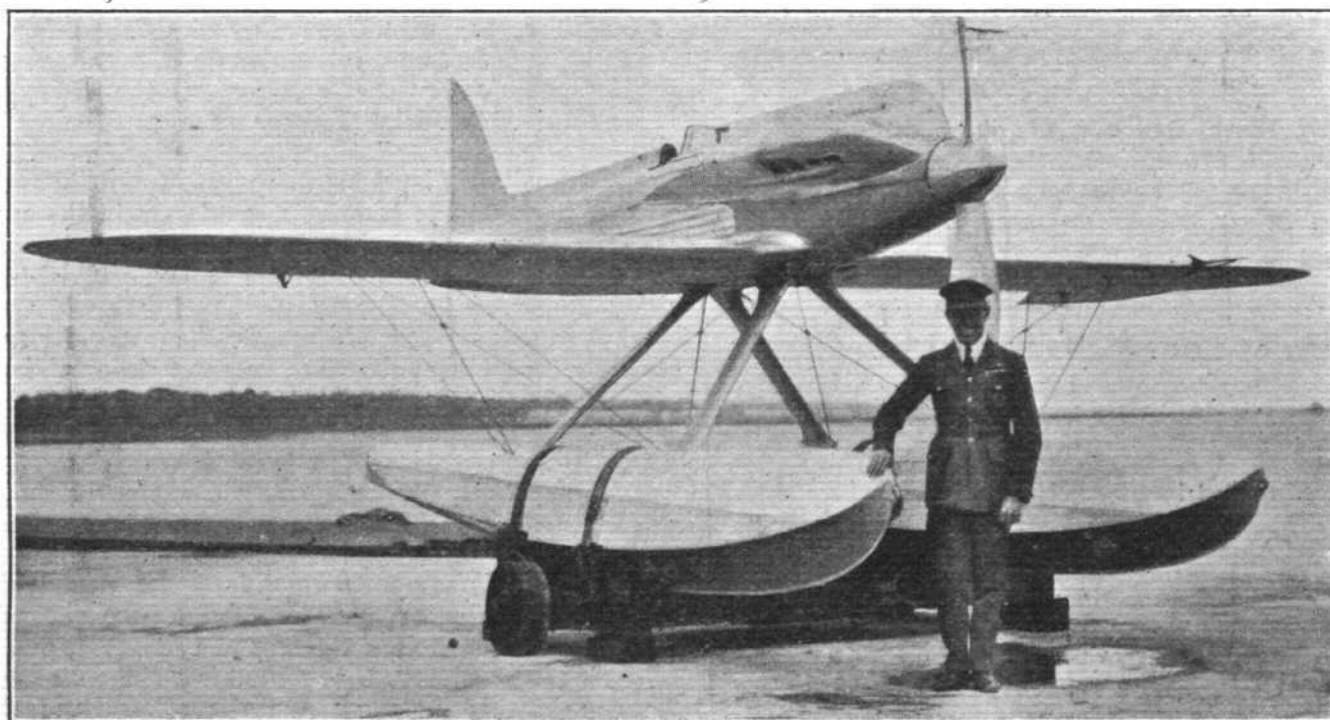
SIR SAMUEL HOARE, Secretary of State for Air, has sent the following telegram to Group-Captain H.M. Cave-Browne-Cave, D.S.O., D.S.C., Officer Commanding Far East Flight, Royal Air Force, which consists of four metal Supermarine Southampton flying-boats, each equipped with two Napier-Lion engines:—

"I warmly congratulate you and all under your command on the highly successful completion of the first 11,000 mile stage of your flight. The punctuality with which you have adhered to your time-table reflects the greatest credit on all concerned and demonstrates convincingly the important

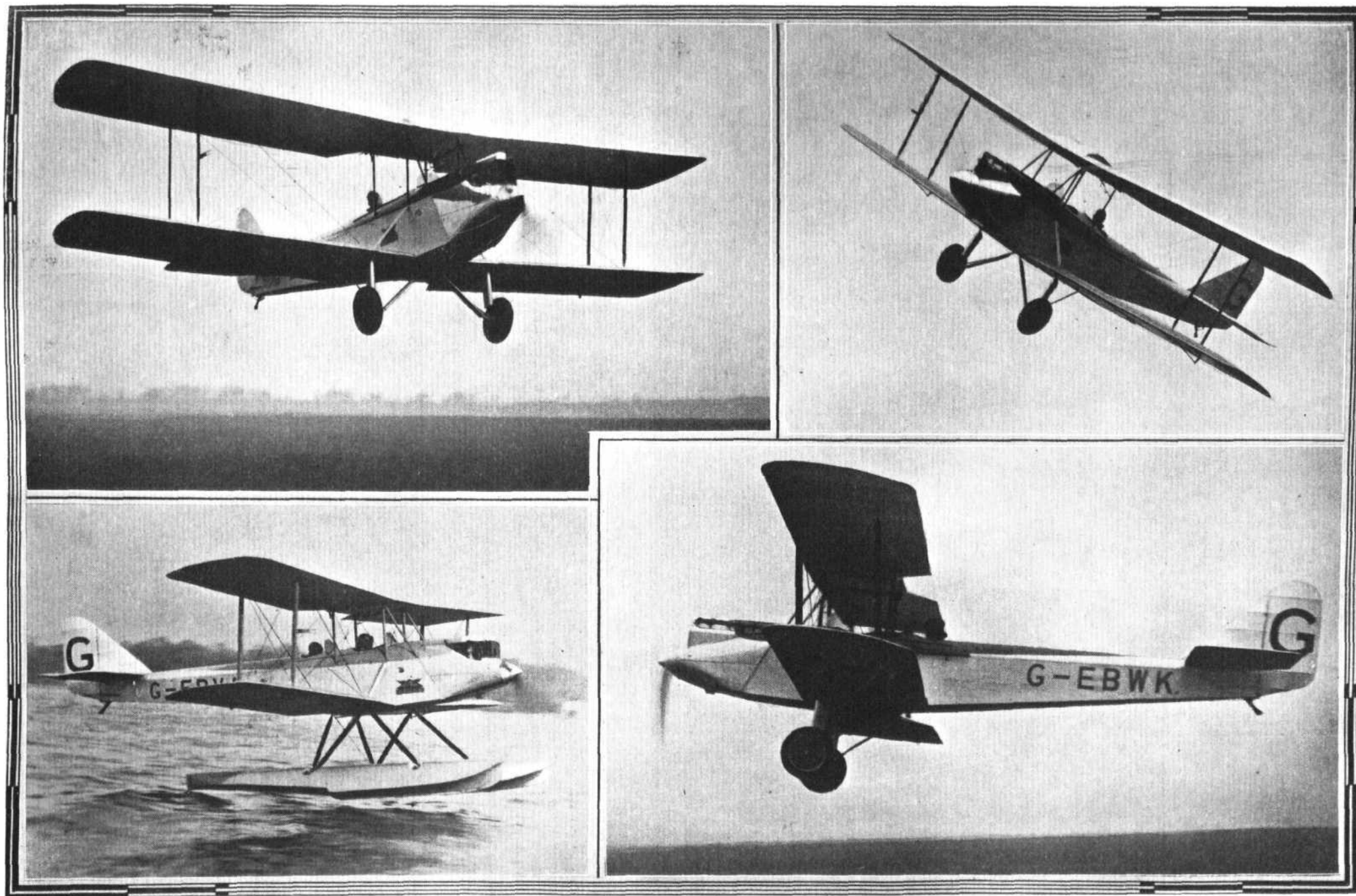
rôle which the flying-boat can fulfil in the Empire, both for defence purposes in time of war and in developing air communications in time of peace."

#### **British Aircraft for Switzerland**

A COMMUNICATION from the British Legation at Berne reports with reference to a scheme for the promotion of civil aviation at Lausanne, that two biplanes fitted with dual control and equipped with an engine developing 80/100 h.p. will be required. Firms in a position to offer British machines can obtain further particulars on application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. (Reference AX.5999.)



**TO ATTEMPT THE WORLD'S SPEED RECORD: Flight-Lieutenant S. M. Kinkead, D.S.O., D.S.C., D.F.C., standing in front of a Supermarine S.5 seaplane. It is on a machine of this type, with Napier "Lion" racing engine, that the attempt to beat the Italian speed record of 297 m.p.h. will be made,**



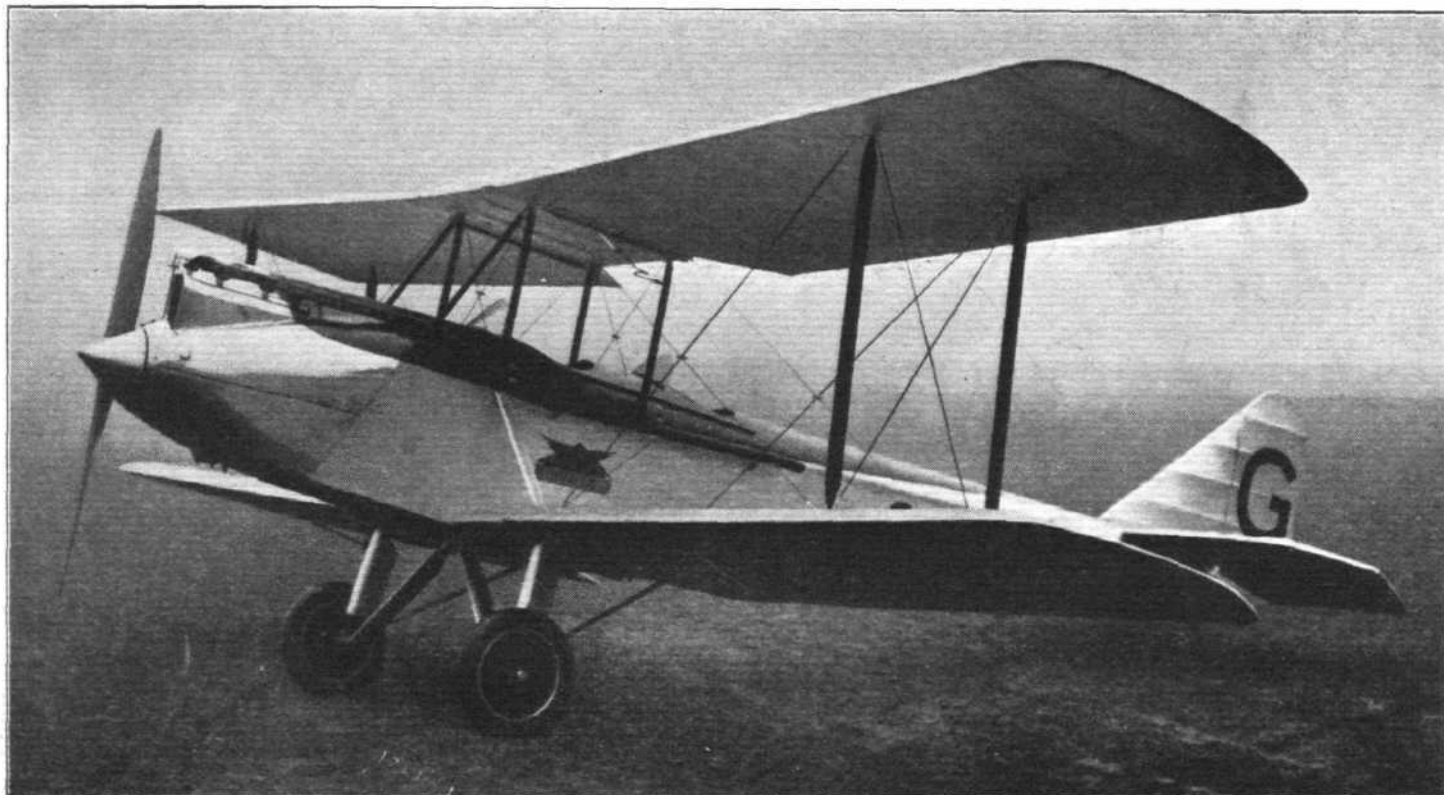
THE AVRO "AVIAN III": Three views of the machine in flight, as a landplane, and a view of it fitted with floats. The landplane views are FLIGHT photographs.



## THE AVRO "AVIAN III" A.D.C. "Cirrus II" Engine

THE first Avro "Avian" was, it may be recollected, designed and built for the *Daily Mail* competition held at Lympe in 1926, and was then fitted with the new Armstrong-Siddeley "Genet" engine. Outstanding features of the prototype were: Very low structure weight, wings of large area, and exceptional ratio of loaded weight to tare weight. Thus the

"Cirrus" engine. The latest model differs considerably from the prototype, and among other changes may be mentioned the decrease in wing area, the large area of the 1926 machine being used in order to enable the machine to carry a large useful load and thus score heavily for competition purposes. Incidentally, it is the original machine which



[ "FLIGHT" Photograph ]

THE AVRO "AVIAN III": Three-quarter front view. Note the neat engine cowling and "clean" nose.

tare weight of the competition machine was 695 lb., and the loaded weight 1,600 lb., the load being made up of 77 lb. of petrol and oil, and 828 lb. of useful load (including pilot). A detailed illustrated description of the original "Avian" was published in *FLIGHT* of August 26, 1926.

Since 1926, the "Avian" has been put into production, and the type which we are about to describe is known as the "Avian" Mark III, which is fitted with the Mark II A.D.C.

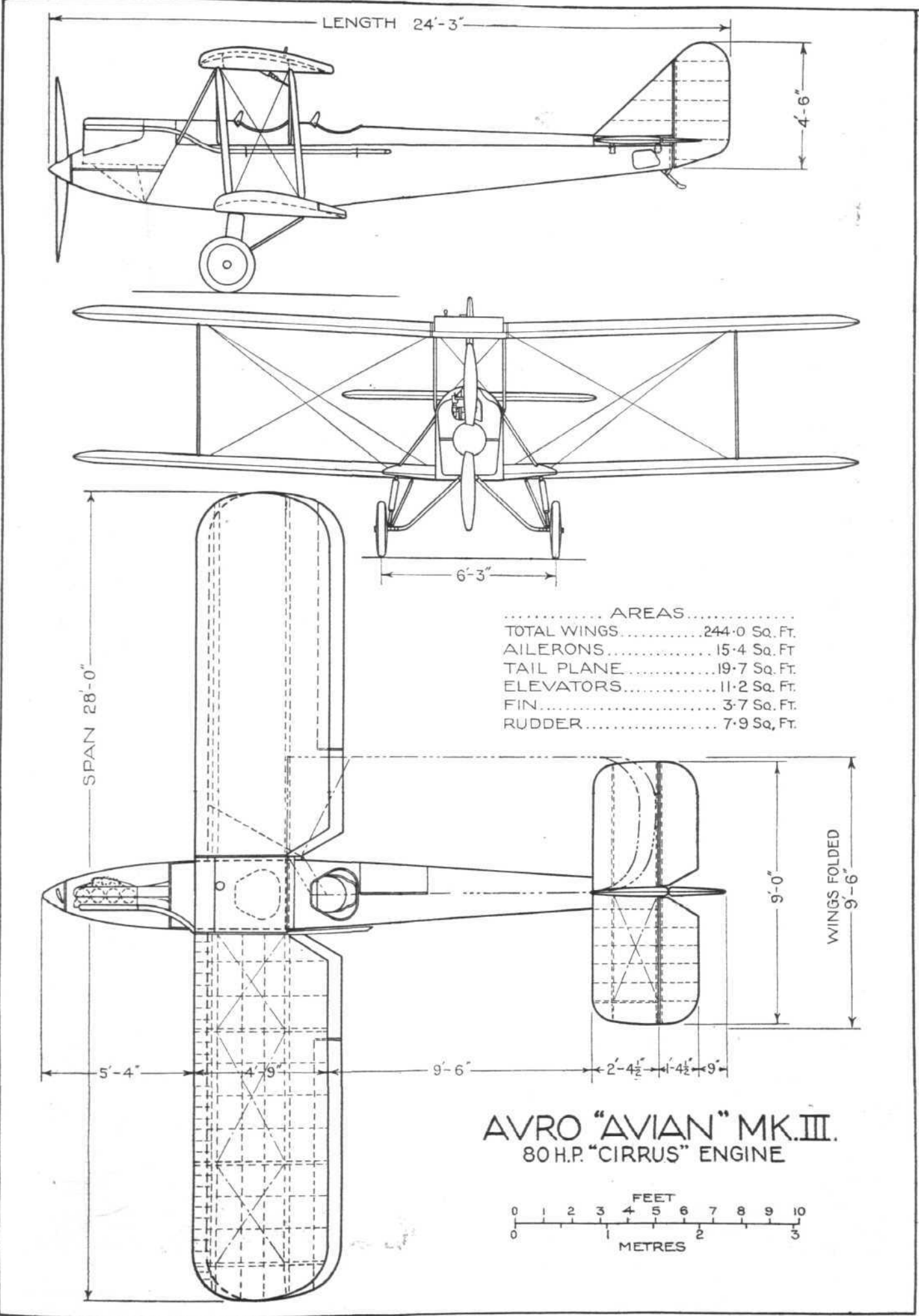
Hinkler used on his recent magnificent flight to Australia in 15½ days. The wings, however, are of much smaller area than those used in the competition.

The production type "Avian" has been strengthened a good deal so as to enable it to withstand the varied handling which it may receive from beginners in flying, and when used for school work. The lines have been improved considerably, and the machine now has a remarkably "clean" appearance.

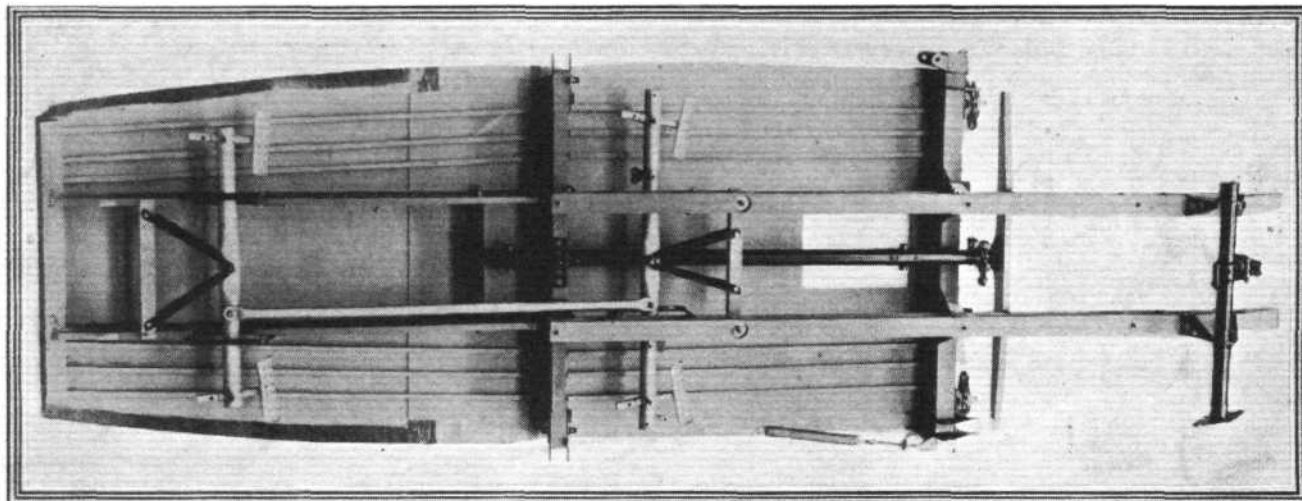


[ "FLIGHT" Photograph ]

THE AVRO "AVIAN III": Three-quarter rear view.



THE AVRO "AVIAN III" : General Arrangement Drawings, to Scale.



["FLIGHT" Photograph]

**THE AVRO "AVIAN III" : Photographic plan view of the control unit. Note the pedal adjustment for pilots of different heights.**

the long slender fuselage terminating in front in a neat engine fairing, and merging cleanly into the spinner over the propeller boss.

The fuselage is of the flat-sided three-ply covered type, and the details of its construction are shown in a set of sketches on page 155. The form of construction adopted is simplicity itself, and has the advantage over the wire-braced girder type of construction that it does not require any trueing-up after prolonged service. In front a fire-proof bulkhead separates the cockpits from the engine, which is supported on a very simple mounting of steel tubes, the arrangement of which is illustrated by a sketch. The engine cowling is so arranged as to be entirely detachable, thus leaving the engine exceptionally accessible, the more so as there is little or no bracing to get in the way. What adds further to the facility with which inspection and adjustment of the engine can be carried out is the special type of undercarriage, invented by "Bert" Hinkler, which lowers the machine a good deal when the wings are folded, the top hamper of the engine thus being within easy reach.

The two cockpits are arranged one behind the other in the customary manner, and dual controls are provided, so that

the machine may be used for instructional purposes. The "joy stick" in the front cockpit is detachable so as not to be in the way when a non-piloting passenger is being carried.

The controls are, generally speaking, of normal type, but as one of our photographs will show, they are mounted on a complete unit which is independent of the main fuselage structure except in so far as its very simple mounting is concerned. The foot bars are provided with T-shaped pedals, and these, which are made of tubing, are mounted in sockets and provided with bolt holes so that the pedals may be adjusted to suit pilots of different length of legs.

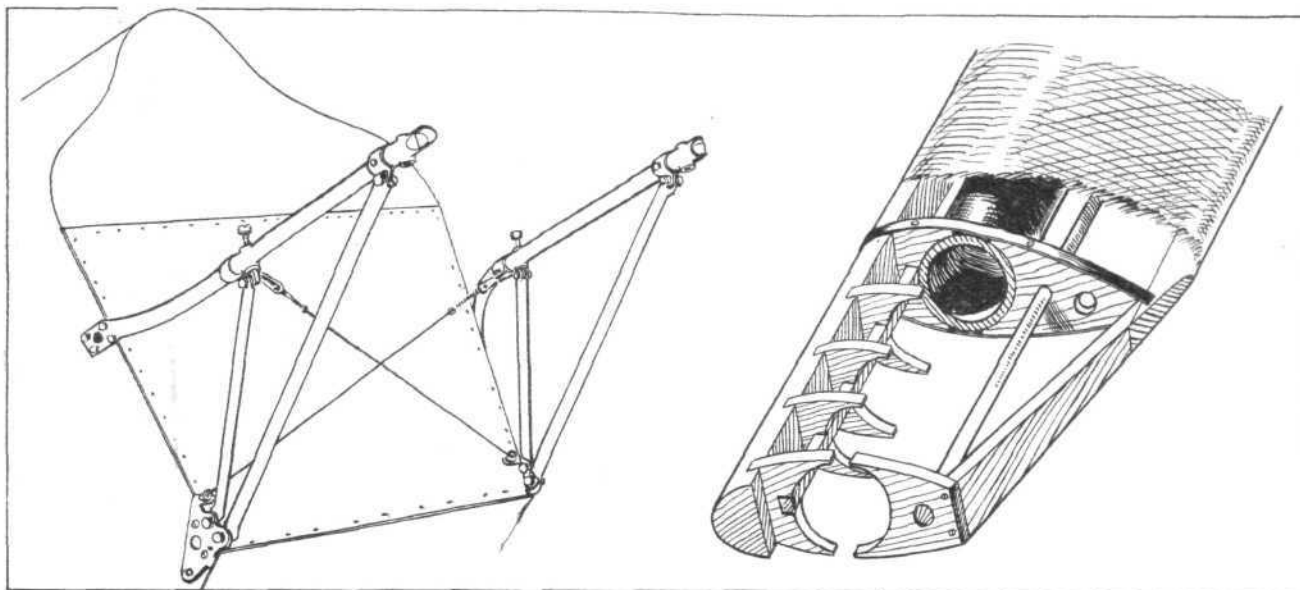
The undercarriage is, as already mentioned, quite different from that fitted on the prototype machine. The original "Avian" (G-EBOV) has an undercarriage of similar type, rigged up by "Bert" Hinkler, its inventor, but the "Avian Mark III" has a slightly modified form, although incorporating the same general principle. The new undercarriage is of the "divided" type, i.e., there is no axle running across from side to side. Instead, the two separate wheel axles are hinged on the centre line of the bottom of the fuselage and bent to a horizontal direction near the wheels. The shock absorbing, or telescopic member is the front "leg" of the chassis Vee,



["FLIGHT" Photograph]

**THE AVRO "AVIAN III" : This view shows the machine with the port wings spread and the starboard wings folded, to illustrate how undercarriage wheels move back when wings are folded. The telescopic jury struts fold flat against the top plane when in flight.**



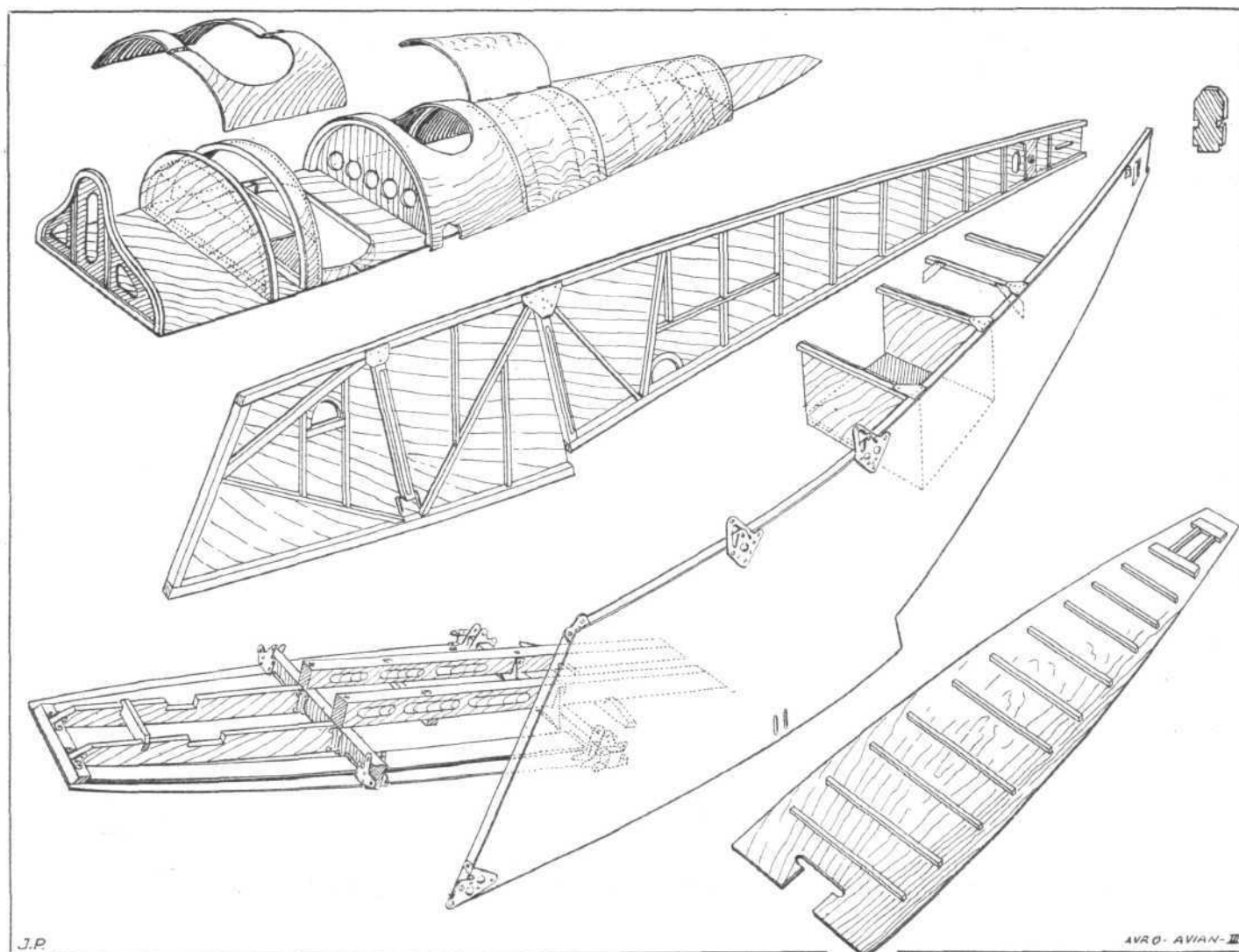


On the left, a sketch of the very simple tubular engine mounting, and on the right, details of the axle fairing.

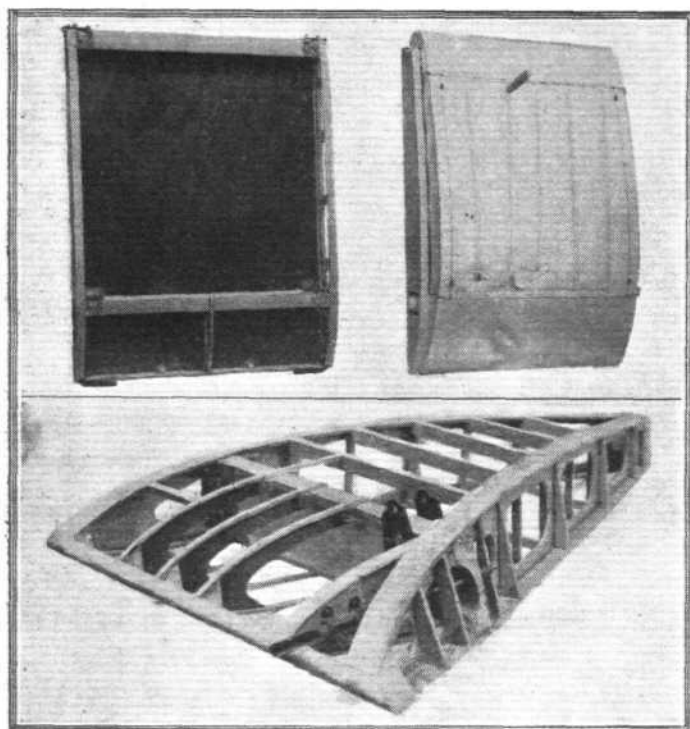
which incorporates rubber block compression rubbers. The rear chassis leg is taken to a point on the lower rear wing spar.

As regards the lower wing, two short wing roots are attached permanently to the fuselage. These roots are triangular in plan view, with the base of the triangle formed by the leading edge and the apex at the rear spar hinge. To brace the root

against the undercarriage loads a short diagonal strut runs to the top longeron. When the wings are folded they swing, of course, around the hinge. The point of attachment of the rear chassis strut being situated some little distance out from the hinge, when the wings are folded the upper end of the rear strut moves back with the wing, and in so doing pulls the wheel back with it, and at the same time the wheel



**THE AVRO "AVIAN III" : Details of the Fuselage Construction.** The simplicity of the "box" type of fuselage is well brought out. Note the supports for the control units. The fittings on the cross beams project through the sides of the fuselage. The luggage compartment has a hinged hatch. The sketches actually show how the main components of the fuselage are built for mass production.



["FLIGHT" Photographs]

**THE AVRO "AVIAN III" : Above—A top centre-section with and without the petrol tank. Below—A wing root of the lower plane. This is of triangular plan form to suit the folding arrangements of the wings.**

moves upward slightly. The combined effect is to lower the machine and to relieve the load on the tail skid. Thus, with the wings folded, the machine can be wheeled along quite easily by one man.

The divided undercarriage has other advantages, such as a wide wheel track which renders possible taxiing the machine in a strong cross wind without risk of it being blown over on to a

wing tip. The absence of a horizontal axle also lessens the risk of nosing over in long grass or corn, in case of a forced landing.

Telescopic jury struts are used to separate the inner ends of the wings when the latter are folded. When the wings are spread the jury struts are "telescoped" and rest in clips under the top plane.

The wing construction of the Avro "Avian" is of perfectly normal two-spar type. The wings are but slightly staggered in relation to each other, but the gap is large and the biplane arrangement is probably very efficient.

The top plane centre-section contains the petrol tank, which has a capacity of 20 gallons. An interesting feature is that one of the centre-section struts is used as the petrol gravity pipe, the flexible petrol tubing being joined to the lower end of this strut. This is indicated in the side elevation below. The high position of the petrol tanks ensures an ample head of petrol even during a steep climb, and, of course, the petrol system is greatly simplified by using direct gravity feed.

When fitted with the standard "Cirrus" Mark II engine, the tare weight of the "Avian III" is 875 lb. The normal loaded weight of the machine is 1,360 lb., and the certificate of airworthiness covers up to a gross weight of 1,450 lb. for "aerobatics," and up to 1,600 lb. for ordinary straight flying. In other words, if it be desired to use the "Avian" for long-distance non-stop flights, a large tank can be fitted in the front cockpit, and the machine may be loaded up to 1,600 lbs. without exceeding its C. of A. for "non-aerobatic" flying.

The main dimensions of the "Avian III" are given on the general arrangement drawings. The main performance figures are as follows, and apply to the loaded weight of 1,360 lb.: Top speed at ground level 105 m.p.h. (170 km./h.). At 5,000 ft. the top speed is 100 m.p.h. The absolute ceiling is 17,000 ft. (5,180 m.), and the stalling speed, 40 m.p.h.

(65 km./h.). Power loading,  $\frac{1360}{80} = 17$  lbs./h.p. Wing

loading,  $\frac{1360}{244} = 5.57$  lbs./sq. ft. "Wing Power,"  $\frac{80}{244} = 0.328$  h.p./sq. ft. (3.53 h.p./sq. m.).

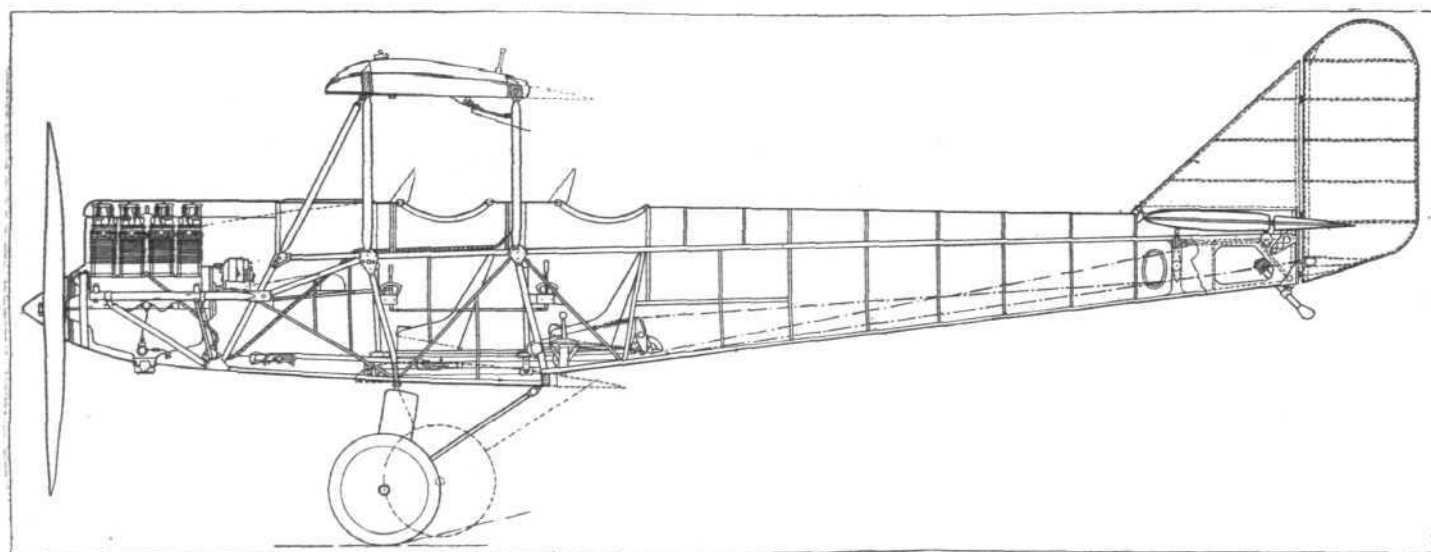
Everling Quantities.

"High-speed Figure": 26

"Distance Figure": 4.9

"Altitude Figure" (Ceiling): 7.6.

All these figures are high, and well above the average.



**THE AVRO "AVIAN III" : This side elevation shows most of the details in the fuselage. The manner in which the undercarriage wheels move back and up when the wings are folded is indicated by dotted lines.**

## The Home Secretary at Leeds

SIR WILLIAM JOYNSON-HICKS, Home Secretary, who addressed the members of the Leeds Conservative Association on February 27, paid a visit to the works of the Blackburn Aeroplane and Motor Co., Ltd., at Roundhay before he left for London. The visit was somewhat in the nature of a surprise, and Sir William saw the works proceeding under normal conditions. Among the various items of interest he saw during his inspection was the work upon an order of 42

Armstrong Siddeley "Siskin" single-seater fighters being constructed for the Royal Air Force.

## Miss Ruth Elder's Medal

THE Chairman of the Senate Aviation Committee of New York has presented to Miss Ruth Elder—who made a plucky but unsuccessful attempt to fly the Atlantic last year—the medal of the Spanish Legion of Honour, which was conferred upon her by the King of Spain.



# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## ANNUAL GENERAL MEETING

THE Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held at 3, Clifford Street, London W.1 on Wednesday, March 28, 1928, at 6 p.m.

**House Dinner.**—A House Dinner was held at the Club on Wednesday last, February 29. Lord Thomson, Chairman of the Club, presided, and Admiral Murray F. Sueter, M.P., opened the discussion on the influence of Aircraft on Naval Strategy.

The following speakers took part in the proceedings:—Captain Edward Altham, C.B., R.N., Mr. Oswald Short, Mr. F. Handley Page, Brig.-Gen. P. R. C. Groves, Mr. C. G. Colebrook, Mr. A. V. Roe and Lieut.-Commr. G. E. P. How, R.N.

**Schneider Contest, 1929.**—The "Schneider" Committee met on February 29. Present:—Lieut.-Col. M. O'Gorman, C.B.; Major J. S. Buchanan, O.B.E.; Commander J. Bird; H. Burroughes; Lieut.-Col. M. O. Darby; Wing-Commr. S. W. Smith, C.B.E.; H. T. Vane; Captain C. B. Wilson, M.C.; H. E. Perrin (Secretary).

In order to comply with the new Regulations, it was decided that the Contest in 1929 should be held at a date between August 24 and October 5.

As the result of the visit of the Committee to Morecambe, it was decided to carry out an aerial survey of a course in that district as soon as possible.

Offices: THE ROYAL AERO CLUB,  
3, CLIFFORD STREET, LONDON, W.1.  
H. E. PERRIN, Secretary.

## MORE POWER FROM THE ARMSTRONG-SIDDELEY "GENET"

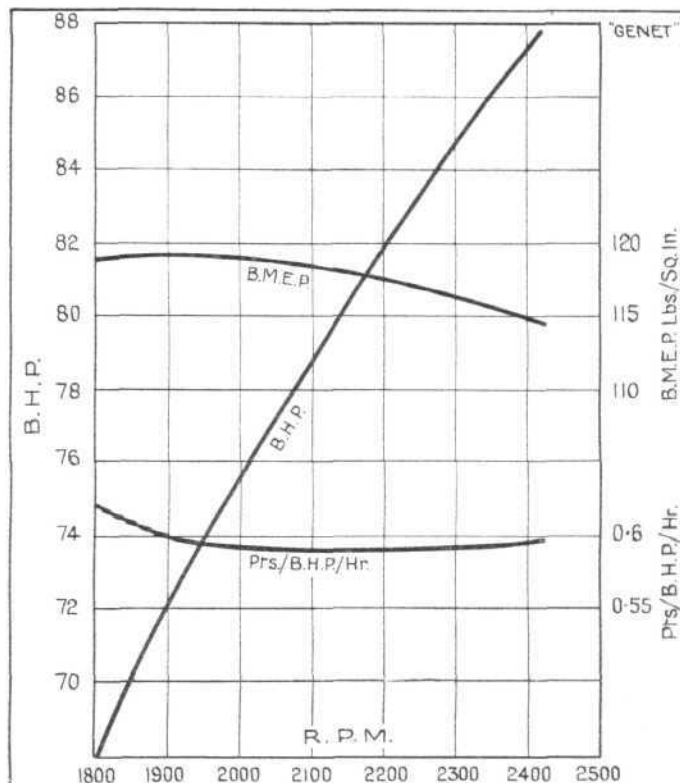
In passing a recent 100 hours' type test, the Armstrong-Siddeley "Genet" engine has been rated up from 65 h.p. to a normal development of 80 h.p. The accompanying power curve indicates the average of the power curves taken at the beginning and end of the 100 hours' test, from which it will be seen that a minimum of over 87 h.p. was obtained at 2,400 r.p.m. and that the normal 80 h.p. was obtained at rather over 2,100 r.p.m.

The Armstrong-Siddeley "Genet" is a 5-cylinder air-cooled radial engine, following in general design the larger "Jaguar" and "Lynx" engines. It was introduced in 1926 for the *Daily Mail* Light Aeroplane Competition, and is now being used with considerable success in Australia, Canada, Brazil, France, and other countries.

Owing to its light weight, it is particularly suitable for light 'planes, and it has, in fact, been fitted with great success in the leading machines of this class. With this new increase of power, the use of the "Genet" should become even more popular, for its design possesses many points to recommend it. The radial arrangement of the cylinders, for instance, makes for exceptional accessibility of the parts, as well as for very efficient cooling. The fact that the complete engine scales under 200 lbs., however, is the most important point in its favour. The overall diameter of the "Genet" is 32½ ins.

Then, also, the employment of five cylinders ensures a very even torque, while the generally robust and rigid construction of the unit accounts for its smooth running.

The constructional features of the "Genet" are, briefly, as follows: One-piece cylindrical crankcase with bolted-on end plates—the front one carrying magneto, oil pumps, and their gearing; the cylinders are steel with aluminium alloy heads, shrunk, screwed and locked in position, while the pistons are forged from "Y" alloy, the crankshaft is in one piece, and is fitted with balance weights; connecting rods—master and articulated—are of "H" section. The cylinders have a bore and stroke of 4 ins.



Power curves of the Armstrong - Siddeley  
"Genet."

## "The Duke of Devonshire Prize" Competition

THE subject selected this year for the competition for "The Duke of Devonshire Prize" is "The History and Development of the Naval Forces of the Empire, with special reference to the following considerations: the recent experience of the operations of air and under-water craft, and the utility in the future of line-of-battleships and cruisers." The competition is open to boys of all the leading public schools throughout the country, and three prizes as follows are awarded by the British Empire League for the best essays sent in:—1st: Twenty guineas. 2nd: Ten guineas. And third: Five guineas. The prize was established in 1909 in memory of Spencer Compton, Eighth Duke of Devonshire, first President of the British Empire League.

## Goggles

PERHAPS the most important part of the personal equipment of an aviator consist of the goggles—the wearing of which is more a matter of necessity than of personal comfort—and too much precaution cannot be taken in their selection. A very popular type of goggle at present used throughout the

world is the well-known "Luxor" Goggle, manufactured by Messrs. E. B. Meyrowitz, Ltd., of London, New York and Paris.

This goggle was designed after very careful research, and conforms to every requirement of the airman and racing motorist. Incidentally, the "Luxor" goggle has the unique record of having been worn by practically every champion of both air and land for the past five years. Bert Hinkler, for instance, wore "Luxor" goggles (No. 6 model) during his solo flight to Australia, while Capt. Malcolm Campbell also wore "Luxor" (No. 4) goggles for his recent world's speed record on the Napier-engined car.

The two most popular models of the "Luxor" goggles are those mentioned above—"Luxor" No. 4 made with Triplex glass, and the No. 6 which has curved lenses of ordinary glass. These, and a full range of "Luxor" goggles can be seen at either of Messrs. Meyrowitz's London branches, situated at 1A, Old Bond Street, and 199, Regent Street, London, W.1—or a pamphlet describing these goggles will be forwarded upon request.

# PRIVATE



# FLYING

A Section of **FLIGHT** in the Interests of the Private Owner, Owner-Pilot, and Club Member

## FLYING CLUBS OF SOUTH AFRICA

### The Johannesburg Flying Meeting

LAST week we told how Lady Heath—who is touring South Africa in her Avro "Avian"—in company with Maj. Miller and Lieut. Bentley, arrived at Johannesburg. We also gave some particulars of the Johannesburg Light 'Plane Club, and mentioned that this Club held a very successful flying meeting last January. Below, our readers will find the "story" continued, in which the happenings at Johannesburg during this meeting, etc., are recorded.

When Lady Heath arrived in Johannesburg, as reported last week, she was accorded an enthusiastic welcome, and the aerial visitors were, for the first week, the guests of Dr. Samuel Evans, Chairman and Managing Director of the Crown Mines. On January 24, Mrs. Evans gave a reception to the Light 'Plane Club members, which was followed by a short talk on aviation as represented by the Light Aeroplane Clubs at home and by a recruiting campaign for members for the Air League.

The Johannesburg Club held a dinner and dance—a wonderful party—the next day, and on January 26, there was a civic reception and lunch given by the Civil Air Board at Pretoria. This was attended by Sir Pierre and Lady Van Ryneveld, the Mayor and Mayoress of Pretoria, and many other prominent people. It is probable that, as a result of this reception, a light aeroplane club will be formed at Pretoria, the Mayor being quite enthusiastic on the matter.

That night a lantern lecture on "British Aviation" was given by Lady Heath at the Carlton Hotel, Johannesburg, at which the Mayor presided; there were about 300 present at this lecture. After a visit to the Gold Refinery with Dr. Evans, Lady Heath and others were occupied on January 27, in discussing the possibility of a municipal aerodrome with the authorities of Germiston and Dr. Raikes, President of the University (and late Professor of Aeronautics at Oxford). Germiston has a very large tract of land available—about 400 acres—and is the biggest railway junction of South Africa. As it is only 7 miles from Johannesburg it would be the ideal situation for the largest Civil aerodrome in the Union—quite apart from the special application of air transport to the gold mining industry.

Saturday, Jan. 28, was joy-riding day, many passengers being taken up, but the main event of the week was the big flying meeting at the Baragwanath aerodrome, arranged by the Johannesburg Club in honour of Lady Heath's visit. It was the first of its kind ever held in South Africa, and

attracted the largest crowds on record for a Johannesburg event.

There were about 6,000 cars present alone, and at first some-

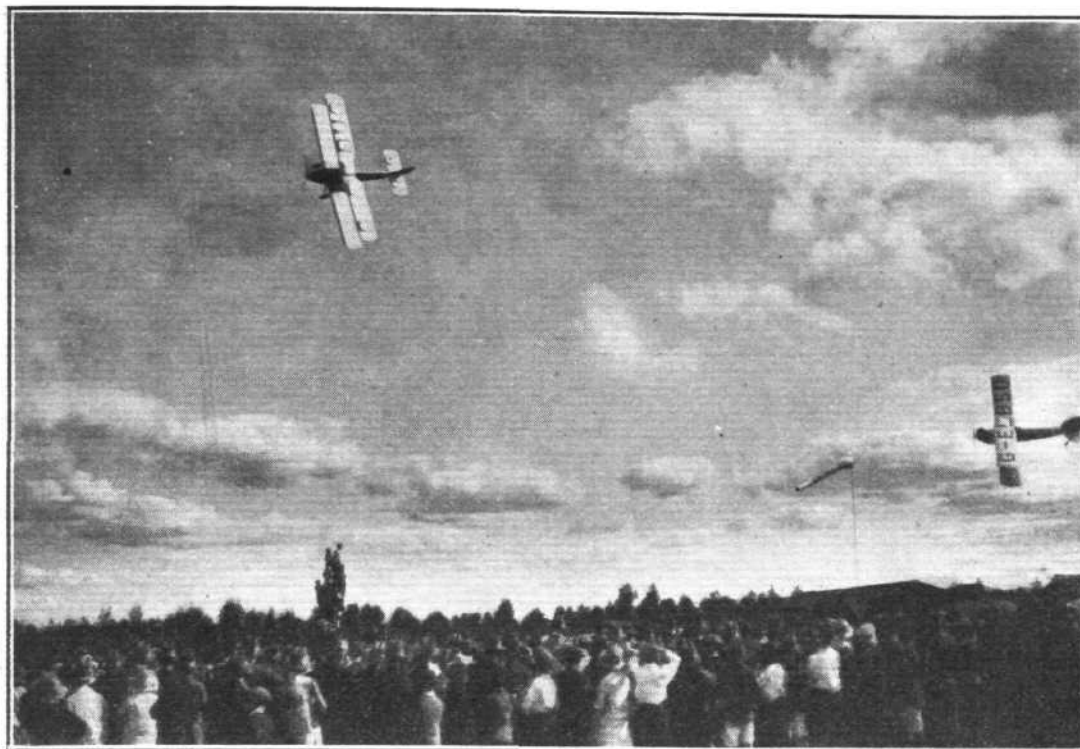


**THE JOHANNESBURG FLYING MEETING:** Lady Dalrymple, Vice-President of the Johannesburg Light 'Plane Club. Standing behind her is Lord Heath.

**The Johannesburg Flying Meeting:** An interested group round Lady Heath's "Avian." From left to right: Mr. A. N. Other; Capt. Bellin, Instructor to the Jo'burg Club, Major Miller (in white cap); Glen Bateman, the first soloist of any S. African flying club; Rod Douglas, Secretary of Jo'burg Club; and behind Lady Heath (in cockpit), Lieut. Bentley.







The Johannesburg Flying Meeting : A close finish. Lady Heath winning the 12-mile handicap race in her Avro "Avian," with Lieut. Bentley a good second in his D.H. "Moth." Note the big crowd.

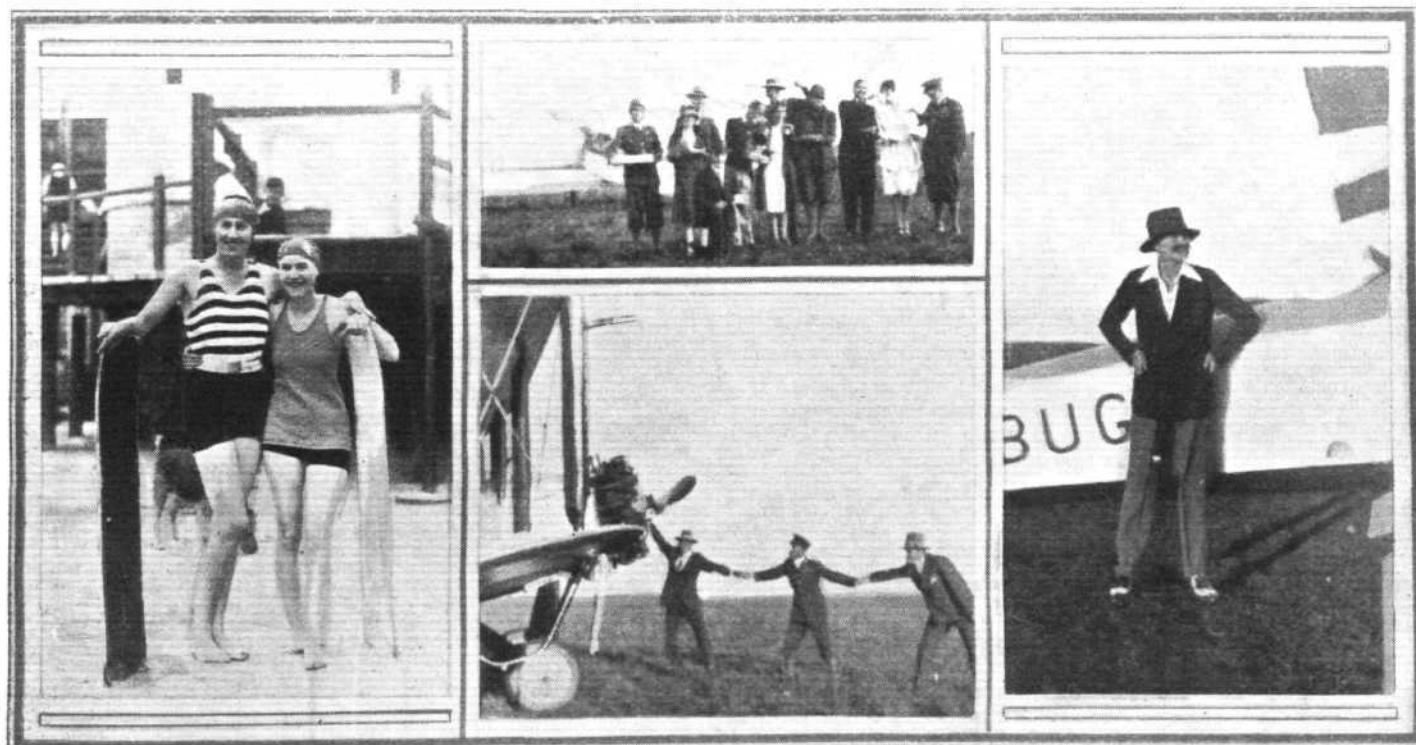
difficulty was experienced in controlling the spectators, who trampled underfoot the rope barriers and swarmed on to the aerodrome. Eventually however, a "formation" of officials etc., advanced on the crowd, and by entreaties, commands, and threats that the meeting would have to be stopped, succeeded in getting the crowd back into its proper place, and the meeting proceeded.

A number of attractive events were down on the programme, including balloon catching, exhibition and stunt flying; joyrides, and a handicap race. The latter was held over a triangular course, approximately 12 miles (two laps). The competitors were Maj. Miller, on a D.H. "Moth," Lieut. Bentley ("Moth"), Capt. Bellin, the Johannesburg Club instructor (also on a "Moth") and Lady Heath on her Avro "Avian."

The machines were lined up at the eastern end of the aerodrome, and started in the order given above, Bentley and

Bellin following 5 secs. after Miller; Lady Heath, starting at scratch 8 secs. later. Major Miller had the misfortune to miss the first turning point—a belt of trees—and circled back to the second point—a flag on one of the hangars—he was therefore, disqualified. This left the two "Moths" and the "Avian" in the race, which kept a true course in fine style. Bellin was leading at the end of the first lap, with Bentley close on his tail, Lady Heath still being some distance behind. Bellin rounded the mark very low, barely 20 ft. above the hangar, while Bentley was a little higher. Lady Heath flew very high, and dived as she rounded the mark, thus gaining speed as she started on the second lap.

During this final lap, Bentley obtained the lead, and Bellin made a thrilling effort to regain his position by darting through a small gap in some trees, but without avail. Meanwhile, Lady Heath was rapidly overhauling her rivals, and on the home leg she "flashed" ahead of them and crossed



INCIDENTAL : "Surfing," says Lady Heath, "is more like flying than flying is." She is seen here (left) with Miss Partridge, a prominent member of the Port Elizabeth Flying Club, after some dual instruction on the surf at that town. Top, centre: an alfresco breakfast on the Jo'burg aerodrome. Below: starting up the Bristol "Jupiter" of a Service D.H.9. Special permission was given by the O.C. Defence Force for Lady Heath to fly in this machine, provided she disguised her identity. N.B.—On the right, the disguise!



the line first, to the accompaniment of enthusiastic cheers from the spectators. Bentley was second, and Bellin third.

On the Monday following this successful meeting, Lady Heath took the "Avian" over to Pretoria, with Mrs. Evans—who had control of the machine during part of the journey. When they arrived at Roberts Heights aerodrome, they found over 300 women, bright in their summer frocks, ready to welcome them. This was the National Council of Women, who entertained the aerial visitors to lunch.

Thus ended an exciting week in and around Johannesburg. The "Avian," it may be added, was "laid up" at Roberts Heights for a thorough overhaul and to have Lieut. Bentley's big petrol tank fitted, prior to Lady Heath's flight towards

the north. This, by the way, started on February 25—with the little sunstroke incident recorded in last week's issue.

In conclusion, Lady Heath informs us that she received "amazing hospitality from everyone" in South Africa, and that nothing could exceed the kindness and goodness of the Clubs, to herself and her husband. She says she had the greatest difficulty in preventing the Clubs from making them presentations—"the Clubs ought," she points out, "to keep all they can get, instead of giving things away!" The Johannesburg Club presented her with a silver-fitted dressing case and a little silver tablet wishing the "Avian" good luck. In fact, each of the S.A. Clubs visited presented a similar tablet, so that the "Avian" G-EBUG is very much adorned!

## LIGHT 'PLANE CLUBS

**London Aeroplane Club**, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.

**Bristol and Wessex Aeroplane Club**, Filton, Gloucester. Secretary, Capt. C. F. G. Crawford, Filton Aerodrome, Patchway.

**Hampshire Aero Club**, Hamble, Southampton. Secretary, H. J. Harrington, Hamble, Southampton.

**Lancashire Aero Club**, Woodford, Lanes. Secretary, C. J. Wood, Oakfield, Dukinfield, near Manchester.

**Midland Aero Club**, Castle Bromwich, Birmingham. Secretary, Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.

**Newcastle-upon-Tyne Aero Club**, Cramlington, Northumberland. Secretary, A. H. Bell, c/o The Club.

**Norfolk and Norwich Aero Club**, Mousehold, Norwich. Manager, F. Gough, The Aerodrome, Mousehold, Norwich.

**Nottingham Aero Club**, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.

**The Scottish Flying Club**, 101, St. Vincent Street, Glasgow. Secretary, Harry W. Smith.

**Southern Aero Club**, Shoreham, Sussex. Secretary, C. A. Boucher, Shoreham Aerodrome, Sussex.

**Suffolk Aeroplane Club**, Ipswich. Secretary, Courtney N. Prentice, "Hazeldean," Stowmarket, Suffolk.

**Yorkshire Aeroplane Club**, Sherburn-in-Elmet, Yorks. Secretary, Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.

### LONDON AEROPLANE CLUB

REPORT for week ending March 4.—Total flying time, 17 hrs. Dual instruction, 10 hrs. 5 mins.; solo flying, 6 hrs. 55 mins.

Dual instruction.—With Capt. F. G. M. Sparks: W. H. Lane, Dr. Cook, C. Peckham, J. A. Crane, G. Black, J. Bickley, A. J. Mulder, Mrs. Fraser, Miss O'Brien. With Capt. S. L. F. St. Barbe: P. W. Hoare, Mrs. Cook, H. Sutton, L. Rowson, Lord M. Douglas-Hamilton, Miss H. Cholmondeley.

Solo flying.—A. J. Mulder, C. E. Murrell, Miss O'Brien, W. Hay, H. M. Samuelson, B. B. Tucker, D. H. P. Esler, Lord M. Douglas-Hamilton, A. F. Wallace, R. Sanders Clark, W. B. Michelmores, Maj. Beaumont, G. W. Hall, P. W. Hoare, A. R. Ogston.

Passenger flights.—With Will Hay: Master Cook. With Capt. Sparks: L. F. Brown and P. C. Ward.

On Sunday, March 4, W. B. Michelmores and G. W. Hall passed the tests for their Aviator's Certificate. In spite of the general improvement in the weather conditions during the week, Stag Lane was very unlucky as regards fog and mist, and flying was only possible on three days during the week.

Flying return for the month of February.—Total flying time, 71 hrs, made up as follows:—

	Flights.	Hours.	Minutes.
Dual instruction .. ..	68	31	30
Solo flying .. ..	59	22	15
Passenger flights .. ..	27	10	50
Test flights .. ..	38	6	25
Total .. ..	192	71	—

During the month of February the rain and fog prevented any flying on 16 days.

### BRISTOL & WESSEX AEROPLANE CLUB

REPORT for week ending March 3.—Total flying hours, 36 hrs. 50 mins. Instruction, 14 hrs.; solo, 18 hrs. 35 mins.; passengers, 4 hrs. 15 mins.

Under instruction.—Major Hume, Messrs. Gibaud, Bryan, T. H. Clarke, Roberts, Girdlestone, Tanner, B. L. Bathurst, and Garnett.

Soloists.—Major Hume, Messrs. Gibaud, T. H. Clarke, Roberts and Arnold.

Qualified Pilots.—Mr. Downes-Shaw, R. A. Hall, K. E. Jopp, E. Hopper, Hon. H. C. H. Bathurst, Capt. Barnwell, C. T. Holmes, J. E. Tratman, and T. W. Campbell.

Passengers:—(With Mr. Bartlett): Miss Uwins, Mrs. Wheeler-House, Mr. S. A. Tutman, and Bristol Times and Mirror representative. (With Mr. Holmes): Mr. Tratman and Mr. Roberts. (With Mr. Campbell): Mrs. Campbell. (With Capt. Barnwell): Master F. Barnwell and Master J. Barnwell. (With Mr. Hopper): Mr. Kilsby. (With Mr. Hall): Capt. J. H. P. Braine.

Mr. Downes-Shaw and Mr. Jopp did more cross-country flying over Somerset, visiting Yeovil on their journey.

Morning mist on most days of the week and rain all Friday prevented us from doing still better than we did. But we had nothing to complain of in the way of weather otherwise.

### HAMPSHIRE AEROPLANE CLUB

REPORT for week ending March 4.—Flying time, 33 hrs. 55 mins. Solo, 17 hrs. 55 mins.; dual, 8 hrs. 20 mins.; passenger flights, 6 hrs. 15 mins.; tests, 1 hr. 25 mins.

Instruction (with Flt.-Lieut. Swaffer): Miss Grace, Mrs. Ranald, Mrs. Crook, Mr. Powell, Perfect, Curtis-Nuthall, Hon. H. Grosvenor, Heath, Richardson, Southcliffe, Kerry, Whittle, Kirby, Bull, Courtney, Puttock, Mandeville, Scott-Hall.

Soloists: Mrs. Ranald, Mr. Cripps, Fry, Kirby, Perfect, Cierva, Lieut. Ranald, Hon. Grosvenor, Heath, Shepherd, Southey, Parker, Lieut. Fagan, Bowen, Leach.

Passengers (with Flt.-Lieut. Swaffer): Graham-Gibbs, Collier, Sanders, Elcock, Black, Westlake, Capt. Lovett. (With Capt. Kirby): Mrs. Swaffer, Mrs. Holmes. (With Lieut. Fagan): Mr. Curtis-Nuthall, Commander Grier, Miss Mallet.

Fine weather has enabled us to put in another good flying week. Arrangements for our Pageant on Whit Monday are going forward and we anticipate putting up a really fine show.

### MIDLAND AERO CLUB LIMITED

REPORT for week ending March 3.—Total flying time, 20 hrs. 44 mins. Dual instruction (with Flt.-Lieut. Rose, D.F.C.): A. B. Gibbons, S. G. Hall, G. Robson, R. P. Lane, J. R. H. Baker, G. Aldridge, E. D. Wynn.

Advanced dual: W. Swann, S. H. Smith, B. W. Barton, G. Brinton. Solo: R. L. Brinton, J. Rowley, E. R. King, G. Robson, S. H. Smith, W. Swann, R. D. Bednell, E. J. Brighton, G. Brinton, C. W. Fellowes.

Passengers (with Mr. Jackson): L. V. Mann, E. Skuce. (With Mr. Glover): J. R. H. Baker. (With Mr. Brighton): J. H. Moore. (With Mr. Perry): G. Brinton. (With Mr. Willis): S. H. Smith. (With Mr. Barton): E. J. Radway, Miss M. Marston.

### NEWCASTLE-UPON-TYNE AERO CLUB

REPORT for week ending March 4.—Total flying time, 31 hrs. 5 mins. Instruction (with Mr. Parkinson): 7 hrs. 30 mins.; solo training, 2 hrs. 55 mins. "A" pilots, 16 hrs. 35 mins.; joy rides, 2 hrs. 55 mins.; tests, 1 hr. 10 mins.

The following members flew under instruction: Miss Klyver, Miss Rambaut, Messrs. Mechan, Percy, V. Heaton, Lloyd-Brown, Griffiths, De Pledge, Glenny.

Soloists: (Training), Messrs. Mechan, Percy, Dr. Alderson. "A" pilots: Mrs. Heslop, Messrs. Stawart, Wilson, Robertson, J. D. Irving, Turnbull, R. N. Thompson, C. Thompson, H. Ellis, Dr. Dixon, Heppell, A. Bell.

Passengers: (with Mrs. Heslop): Mrs. Anderson, Mr. C. Thompson. (With Dr. Dixon): Miss Stawart, Mr. Temple. (With Mr. H. Ellis): Mr. R. G. Lawson. (With Mr. Turnbull): Mr. Stringer. (With Mr. C. Thompson): Mrs. Heslop, Mr. Luckman. (With Mr. R. N. Thompson): Mr. Turnbull. (With Mr. Heppell): Mr. R. N. Thompson. (With Mr. A. Bell): Miss Bulmer, Mr. H. C. Walker. (With Mr. J. D. Parkinson): Rev. Hurst, Mr. W. Ramsay, Mr. Oakes, Mr. Bulmer, Miss Lawson.

Fog has again been general throughout the week, varying only in intensity. Flying was seldom possible during the morning, and usually lasted only for two or three hours during the early afternoon. There has, each day, been a good turn up of members who have patiently waited for improvement, and occasionally they have been able to fly. Eleven hours thirty minutes were put in on Sunday, though flying only commenced at 11.30 a.m., after which the three "Moths" were fully occupied.

C-EDCA, flown by Major Mealing, with Mr. Burkett, arrived at the club on Monday. These gentlemen each carried out inspections on Tuesday, and flew to Sherburn on Wednesday morning, the visibility was very bad and the machine was lost to view shortly after leaving the ground. Mr. W. Ramsay, of the Aviation Inspection Directorate, also carried out inspections of machines on Tuesday, so everyone was on the *qui vive* on that day. However, we do not appear to have done anything very wicked, so all ended well.

### NORFOLK & NORWICH AERO CLUB

REPORT for week ending March 4.—Total flying time, 20 hrs. 2 mins. Instruction (with Capt. Lines): Messrs. W. Cullum, R. Potter, H. Mack, G. Surtees, A. Cooper. (with Mr. Fry): Messrs. G. W. Barker, H. Mack, G. Surtees, R. Potter, A. J. K. Finch.

Soloists.—Messrs. H. Pank, F. Gough, R. T. Harmer, W. P. Cubitt, W. A. Ramsay, N. Brett, H. Mack, G. Surtees, R. Potter.

Passengers.—Mrs. Cubitt, Messrs. A. Adcock, A. Bagshaw, S. Toulson, P. Pickthorne.

Our new pilot instructor, Mr. F. Fry, took over duties on Saturday and put in some sterling work. He is a splendid instructor and inspires great confidence in his pupils and even at this early stage he passed out one as soloist on Saturday and two on Sunday. They are Mr. H. Mack, of Drayton, Mr. G. Surtees, of Lowestoft, and Mr. R. P. Potter. All these members have been training for some time under the difficulty of not being able to devote the time to it. They have only been able to put in about an hour a week and sometimes less, therefore it is most pleasing to see them go out in such fine style, all of them now being such confident capable soloists. We expect to see one or two more going off in the very near future.

Capt. Lines has now completely severed his connection with the club in every way.

Messrs. A. V. Roe and Co., Ltd., have been good enough to send us one of their Avian machines down this week for trial, and many active members have been given trial flights in it by their excellent pilot, Capt. Brown. This is the same type of machine that "Bert" Hinkler has accomplished his splendid feat in, and it certainly had an enthusiastic reception from our members.

The other day a large bunch of keys were picked up on the aerodrome. They turned out to belong to one of our flying members, although why he put them overboard we do not know; it's mostly airship people who unship ballast.

We welcome our ground engineer, Mr. A. Kirkby, today and are confident that the very best service will be given to members in future to avoid any waste

of time. As far as practicable, flying will be run with clockwork precision. Mr. Browne who has been good enough to put in a lot of time as ground engineer, deserves the thanks of the club for the splendid way he has carried out those duties while we were fixing up for a permanent man.

Our intrepid soloist, Mr. Cubitt, is in receipt of ground instruction. He tried to obtain that kettle drum effect by running the wings of the Moth along a wooden fence. Of course, it didn't sound very nice and we suggest that the next time he wishes for some music he should run along with a piece of stick. However, Mr. Browne is going to take him in hand and explain what happens when wings come in contact with wooden fences.

# NOTTINGHAM AERO CLUB

REPORT for week ending February 24.—Total flying time, 21 hrs. 5 mins. Dual time, 10 hrs. 45 mins.; solo "A" licence, 4 hrs. 35 mins.; solo under instruction, 3 hrs. 5 mins.; passenger flights, 1 hr. 45 mins.; tests, 55 mins.

Passenger flights.—(With Mr. Martin): Messrs. Glenn, Brodie, Foulds, Richardson, Hooley, Bryant, Bennett, G., Tew and Bennett, H.; (with Mr. Hallam): Mrs. Willatt and Messrs. Sugg and Kay (with Mr. Sands); Miss Turney; (with Mr. Wilcox): Mrs. Walter, Miss Wilkinson, Miss Wheatley, and Messrs. K. A. Blake, C. Reading, Rev. J. Ridgeway; (with Mr. Seely Whitby): Mrs. Whitby; (with Mr. Ball): Messrs. Wright and Hemsley.

Dual.—(With Mr. Martin): Messrs. Glenn, Calladine, Pilgrim, Walter, Hancock, Ashworth, Booth, Granger, Austin, Bennett and Coles.

Solo "A" licence.—Messrs. Seely Whitby, Hallam, Sands, Ball and Wilcox.

Solo (under instruction).—Messrs. Cox, Blake, Coles, Booth and Pilgrim.

We had our record week this week for our single machine.

Sunday was fine and we put in over 7 hrs.

Three more soloists have been pushed off this week: Bernard Pilgrim (an *ab initio*) putting up a sterling show; the other two, Elwin Coles and Booth are both R.A.F. pilots with considerable time.

Seely Whitby has the distinction of being the first member to aviate his wife; she looked as though she liked it too.

# SCOTTISH FLYING CLUB, LTD.

REPORT for February.—The month of February proved kinder as regards weather than the previous month, although only to a very slight extent. Nevertheless, advantage was taken of every possible moment of flying weather, and a goodly number of hours were put in, as will be seen from the statistics at the end of this report.

On February 10, the second Club Dance was held at the Waldorf, and Lady Weir of Eastwood, the wife of our President, very kindly acted as hostess. Several well-known families of the West of Scotland brought large parties, and the total number of tickets sold for the Dance amounted to 512.

During the evening, Lady Weir drew the numbers for the free flights, the sale of which had amounted in all to some 1,250 tickets. Curiously enough, Lady Weir drew herself the second ticket, and we are looking forward to having Her Ladyship down at the Aerodrome to give her what will be perhaps her first view of the Clyde from the air.

On February 14, we got delivery of our second Moth, G-EBVT, which was flown up from Stag Lane by one of our pilot members, Flight-Lt. T. Jones, and he had as passenger Mr. Barclay, another member of the Club.

They were held up in London owing to fog, but once they started they did the journey in two laps, flying first of all from Stag Lane to Newcastle, and the following day from Newcastle to Renfrew, their total flying time being 6½ hours.

The arrival of the new machine was very timely, as the time had arrived when G-EBVV had to undergo top overhaul, having already flown 125 hours, and this was carried out very expeditiously in the matter of four days by the ground engineer, Mr. Calder and his staff.

The Hon. Secretary has received a goodly supply of Club Badges, and those desiring same should apply to him, sending the necessary 7s. 6d. Negotiations with regard to the Ties and Blazers are proceeding, and it is hoped very soon to be able to advise members where these can be secured.

The Ladies' Committee have been getting very busy during the last month, and a full meeting was held by them on Tuesday, February 14, when various plans were gone into for the raising of further funds for the Establishment Fund.

Members are reminded that the next Club Dance will be held on March 30, as usual, at the Waldorf, and tickets for this are now available, and it is hoped that this Dance will be a still greater success than the previous ones. It is hoped this time to sell 750 tickets. The proceeds of this Dance are being earmarked for the erection and equipment of the Club House, and there is still a considerable sum wanted to be upsid with the lowest tender received. We want to get the Club House ready as soon as possible, so that all members are urgently asked to get rid of as many tickets as they

# FROM THE FLYING SCHOOLS

## De Havilland Flying School, Stag Lane Aerodrome

REPORT for week ending March 4.—Total flying hours: 18 hrs. Instruction: dual, 3 hrs. 40 mins. Solo: 4 hrs. 50 mins. Other flying: 9 hrs. 30 mins.

The week's flying is again interrupted by mist which accounts for the relatively small amount of school work carried out.

Seven new "Moths" in all, including four for the Royal Air Force were tested during the week and also the "Moth" G-EDCA, destined for the Director of Civil Aviation, which was duly handed over.

During the week two of the officers of the Belgian Air Force flew "Moths" to their great satisfaction.

# Civil Aviation in Scotland

ABOUT three months ago the premier club, known as the Scottish Flying Club, came into existence in the West of Scotland. Less than a fortnight ago Inverness followed in the wake of Glasgow, and the Highland Aero Club was formed. Last week the Scottish capital moved in the same direction, and on 2nd inst. a representative gathering was held in the Council Chambers, Edinburgh, under the chairmanship of the Lord Provost, Sir Alexander Stevenson, and the Edinburgh Aero Club was formed. In addition to the Lord Provost, Mr. T. J. Connolly, organising secretary, and Mr. R. S. Moore, of the Gnat Aero Co., Ltd., addressed the meeting. The Lord Provost and Lord Anderson were appointed hon. presidents, while the pioneer of aviation in Scotland, Major W. H. Ewen, was appointed president, and Squadron-Leader McKelvie

possibly can, as they will not only be ensuring their friends a very pleasant evening, but will also be considerably assisting the Club.

The following are the statistics for the month of February, compared with the previous two months:—

	December.	January.	February.
Total hours flown	61.15	33	78
Number of members under instruction	40	56	63
Number of solo flights	11	36	32
Total number of actual flights undertaken	174	91	213
Number of days when flying was possible	23	10	15
Number of members who secured their A Licence	4	4	1
Total number of members with A Licence			12

Mr. Alex. Wren was the member who secured his A Licence during the month under review.

The membership of the Club stands as follows:—Foundation and pilot members, 142; observer members, 23; associate members, 89. Total, 254 members.

There are several on the waiting list, especially in the pilot grade.

# SUFFOLK AEROPLANE CLUB

REPORT for week ending March 4. Flying time: 13 hrs. 45 mins. Instruction (with Mr. Lowdell): Miss Sylvia Edwards, Miss Rhodes, Dr. Dunn, Messrs. K. Peck, F. Jolly, N. W. Creasy, F. Verney, C. Hanson, H. Billinton, R. Brown.

Passengers (with Mr. Lowdell): Miss Gayford, Colonel Rutledge, Miss D. Rutledge, Miss E. Rutledge, Dr. Metcalfe, Miss Hendry, Mr. Norris; (with Mr. Prentice): Miss Wilson, Miss Cox, Miss Henry, Mr. Dyson, Mr. F. Rhodes.

Soloists: Miss Sylvia Edwards, Dr. Jas. Sleight, S. Schofield, K. Peck, R. Brown, F. Jolly, H. Billinton, N. Creasy, C. N. Prentice.

Glorious weather has favoured us throughout the week, and our one and only machine has been kept extremely busy.

Within nine days five of our members have been launched solo. On Sunday Miss Sylvia Edwards made her first solo flight, she put up an excellent performance and shows promise of being a really fine pilot, we are all very proud of her. We hope to launch two other ladies in the near future.

Mr. Billinton was also launched solo and handled the machine in a remarkably fine manner. Mr. F. Jolly went off solo on Thursday and again the performance was really good.

Mr. Brown with an "Avro Avian" visited us this week-end and several of our members who had an opportunity of flying the machine were delighted with it and hope it has come to stay.

Altogether it has been a most enjoyable and successful week.

# YORKSHIRE AEROPLANE CLUB

REPORT for week ending March 3.—Flying time: 4 hrs. 25 mins. Instruction: 2 hrs. 30 mins. Soloists: 1 hr. 55 min.

Instruction (with Captain Beck): Messrs. Ambler, A. Crowther, Ellison, Ostler, Shires, Wilson.

Soloists: Messrs. Ellison, Norway, I. Thomson.

Passengers (with Mr. Thomson): Mr. Humphreys; (with Mr. Lister): Mr. Brooks.

This week the aerodrome has again been shrouded in fog. Flying was possible last Sunday but even then it was not wise to go very far from the aerodrome. Tuesday, Wednesday, Thursday and Friday, flying was practically impossible, but on Saturday advantage was taken of the fine weather and a few hours put in.

We had a visit from Major Mealing and Mr. Burkett, from the Air Ministry, in the Director of Civil Aviation's new "Moth." They only intended to stay one night for the dance on Wednesday, but owing to the fog did not get away until Saturday.

The first Club Dance in aid of the Club-house fund was held at Tadcaster on Wednesday and acclaimed by all to have been a marked success. There were over 250 present and the majority of these were accommodated at tables round the dance floor. Exquisite dance music was provided by Mr. Billy Hobson and his Band who once again proved themselves to be one of the most up-to-date dance bands in the North of England. We are very grateful for their services, which were quite voluntary.

Although the balance sheet for the dance is not yet complete, it is expected that a substantial sum of money will have been raised.

# Henderson Flying School, Brooklands Aerodrome

REPORT, week ending March 1.—Dual: 16 hrs. 15 mins. Solo: 3 hrs. 40 mins. Total: 20 hrs. 30 mins.

Dual (with Mr. H. D. Davis): Messrs. Lattey, McCabe, Liniker, Hamilton, Dr. Foreythe, Dr. Wall and Van Gessel.

Solo: Messrs. Liniker, Lattey, Crabtree, Dr. Wall, Mr. Cooper and Flying Officer Vaughan.

Mr. Liniker has now passed all his tests for his Royal Aero Club Licence.

Mr. Anderson was launched solo and executed several fine figure of eights in his first trip.

Mr. Crabtree led a formation flight of three machines and put up a very excellent show.

The new machine is now in service and should expedite the delivery of pilots.

vice-president. Mr. Connolly was elected secretary, and a committee was also formed to carry through the necessary details. It is hoped that the necessary funds will be speedily forthcoming and that the new club will enter upon its career of usefulness immediately. Service men and University students are taking a keen interest in the movement in Scotland.

# D.H. "Moths" in Canada

THE Canadian Government is extending its scheme for the establishment of Dominion flying clubs and forty D.H. "Moths" have been delivered or are on order for that purpose, and for private concerns. It would seem, therefore, that the Canadian branch of the De Havilland Co. will be kept busy in one way or another as soon as it gets going.



# A NEW AVRO COMMERCIAL MONOPLANE

## The Type 610 4-Passenger Machine With Radial Engine

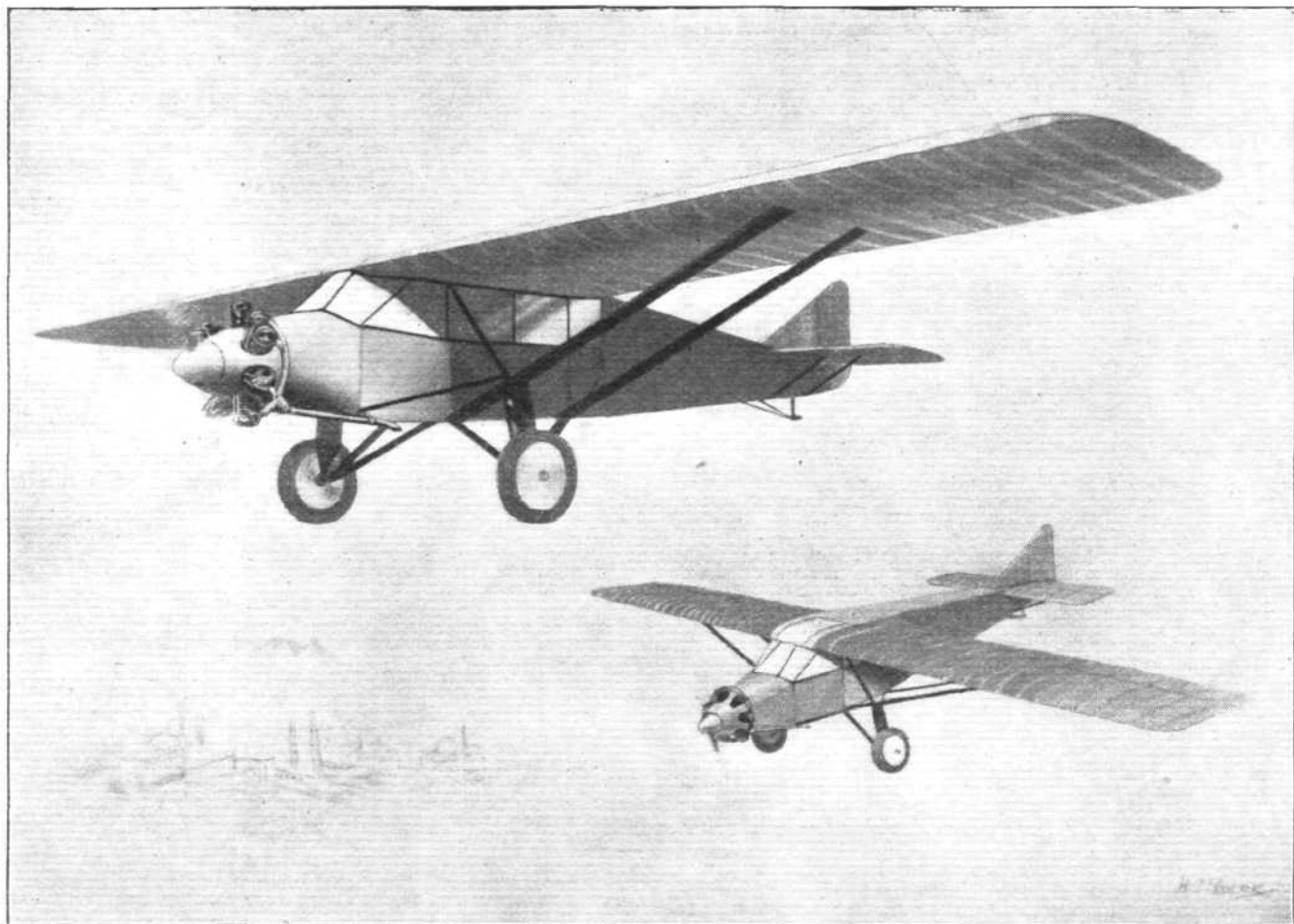
LINDBERGH's lone flight across the Atlantic last year first drew attention to a type of small commercial machine which has been becoming very popular in America of recent years for "feeder line" work, *i.e.*, for operating on lines branching off the main commercial air routes, and having but a relatively limited amount of traffic to cater for. Built on the cheapest possible lines, such machines have proved very economical both in first cost and in operation, and there can be no doubt that the type will soon make its appearance in this country also. In fact, more than one firm is known to be designing machines of this general type. The first firm publicly to announce the production of a small commercial monoplane is A. V. Roe & Co., whose machine, the type 610, forms the subject of the sketches accompanying these notes.

As the sketches show, the 610 strongly resembles the

consist, normally, of pilot, 40 gallons of petrol and 2½ gallons of oil, in all 495 lb., bringing the gross weight with normal load up to 2,975 lb. The petrol tanks will have a capacity of 60 gallons and the oil tanks 4 gallons, but normally only the quantities given above will be carried, when the duration will be in the neighbourhood of 4 hours at a cruising speed of 110 m.p.h. With full tanks and four passengers, which will bring the gross weight up to 3,140 lb., the range is increased to 675 miles and the duration to 6 hours.

The general dimensions of the Avro 610 will be: Length, o.a., 27 ft. 6 in.; wing span, 43 ft. 6 in.; wing chord, 7 ft.; wing area, 266 sq. ft. Wing loading, 11.18 lb./sq. ft. Power loading, 14.88 lb./h.p. "Wing Power," 0.75 h.p./sq. ft. (8.1 h.p./sq. m.).

Following are the *estimated* performances: Maximum speed, near ground, 123 m.p.h.; at 5,000 ft., 119 m.p.h.



*From Sketches by H. J. Proctor*

**A NEW AVRO COMMERCIAL AEROPLANE:** To be known as the type 610, this machine will have seating accommodation for four passengers. The engine will be a radial of the 200 h.p. class. The monoplane strongly resembles the type which has become so popular in America during the last few years.

American monoplanes of similar type. The resemblance is not confined to the external lines, but will be found in the detail construction also, as the fuselage will be a welded steel tube structure and the wing a normal timber construction braced by steel struts faired with balsa wood. The machine is of the *conduite interieure* type in that the pilot sits in the forward portion of the cabin, behind large windscreens, while the passengers' seats are arranged in two sets of two, side by side. The cabin will be entered by doors at the rear end, one on each side. The cabin dimensions will be 5 ft. 6 in. by 3 ft. 4 in. by 4 ft. 9 in.

At the moment it is not quite certain which engine will be fitted, but we gather that the machine is designed to use either the Armstrong-Siddeley "Lynx," the Wright "Whirlwind," or the Bristol "Titan." At any rate, the design is based upon a normal full power of 200 b.h.p. at 1,700 r.p.m.

The calculated tare weight of the Avro 610 is 1,800 lb., and the pay load to be carried will be 680 lb., corresponding to 4 passengers and their luggage. The non-paying load will

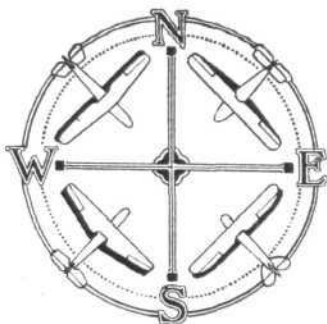
at 10,000 ft., 113 m.p.h.; at 15,000 ft., 86 m.p.h. Minimum speed near ground, 55 m.p.h.; cruising speed at 2,000 ft., 110 m.p.h.; duration at 110 m.p.h. at 2,000 ft., 4 hours. It is estimated that the ground level rate of climb will be 700 ft./min., and the times of climb are estimated as follows: To 1,000 ft., 1.4 mins.; to 5,000 ft., 8.7 mins.; to 10,000 ft., 23 mins.; to 14,000 ft., 51.4 mins. Service ceiling (*i.e.*, rate of climb = 100 ft./min.), 13,300 ft.; absolute ceiling, 15,500 ft.

A total structure weight of 1,150 lb. has been estimated, while the remaining 650 lb. of the tare weight is composed of engine, exhaust pipes, airscrew, tanks and piping, and starting gear and accessories.

The estimated ground level top speed at normal weight and normal power of 200 b.h.p. corresponds to an Everling "High-speed Figure" of 17.5, which indicates average efficiency; *i.e.*, assuming a propeller efficiency of 75 per cent., the drag coefficient of whole machine at incidence corresponding to top speed is 0.0214 in British "absolute" units. A similar value should be obtained with a biplane.



# AIRISMS FROM THE



# FOUR WINDS

## African Survey Flight

SIR ALAN AND LADY COBHAM, and the crew of the Short-Rolls-Royce "Singapore" flying-boat arrived at Fort Johnston—the southern extremity of Lake Nyasa—on February 28. Then Sir Alan held a conference with the Nyasaland Government at Zomba, and on March 4 he left Fort Johnston and flew to Beira. Proceeding on March 6 he arrived at Lourenco Marques, after a 500-mile flight against the wind.

## Bert Hinkler at Brisbane

BERT HINKLER departed from his home town of Bundaberg on the morning of March 6, and flew to Brisbane, 200 miles distant. Before leaving Bundaberg he gave the name of "Hinkler Park" to the town's recreation ground—on which he landed—by breaking a bottle of champagne over the park from his Avro "Avian." At Brisbane he was accorded a very hearty welcome, being greeted by Mr. McCormack, the Premier, and by his mother. Mr. Bruce, the Prime Minister of Australia, has invited Bert Hinkler's mother to be the guest of the Commonwealth at Canberra during her son's visit.

## R.A.F. Cairo-Cape-Cairo Flight

THE annual Cairo-Cape-Cairo tour of four R.A.F. Fairey III F. (Napier "Lion") machines, under Air Vice-Marshal T. I. Webb-Bowen, started on March 1, when the Flight flew from Heliopolis to Khartoum. Malakal was reached on March 6.

## France-South America Air Mail

The special mail (air, land, and sea) service between France and South America—reference to which has frequently been made in *FLIGHT*—commenced operations on March 1. For the present, according to *The Times*, the mails from Paris will go as far as Toulouse by train; in the absence of facilities for night flying this is still the quickest regular route. At Toulouse they will be handed over to the Latécoère Air Line, which will carry them in stages to Saint-Louis, Senegal. The machines used on this section will be C.A.M.S.51 flying-boats. From Saint-Louis to the Cape Verde Islands the mails will be carried in L.A.T.21 flying-boats (two 380 h.p. Gnome-Rhône "Jupiter" engines), and there they will be transferred to fast steamers, which will take them to Fernando Noronha. From this island L.A.T.26 land machines will finish the course. There will be one service a week in each

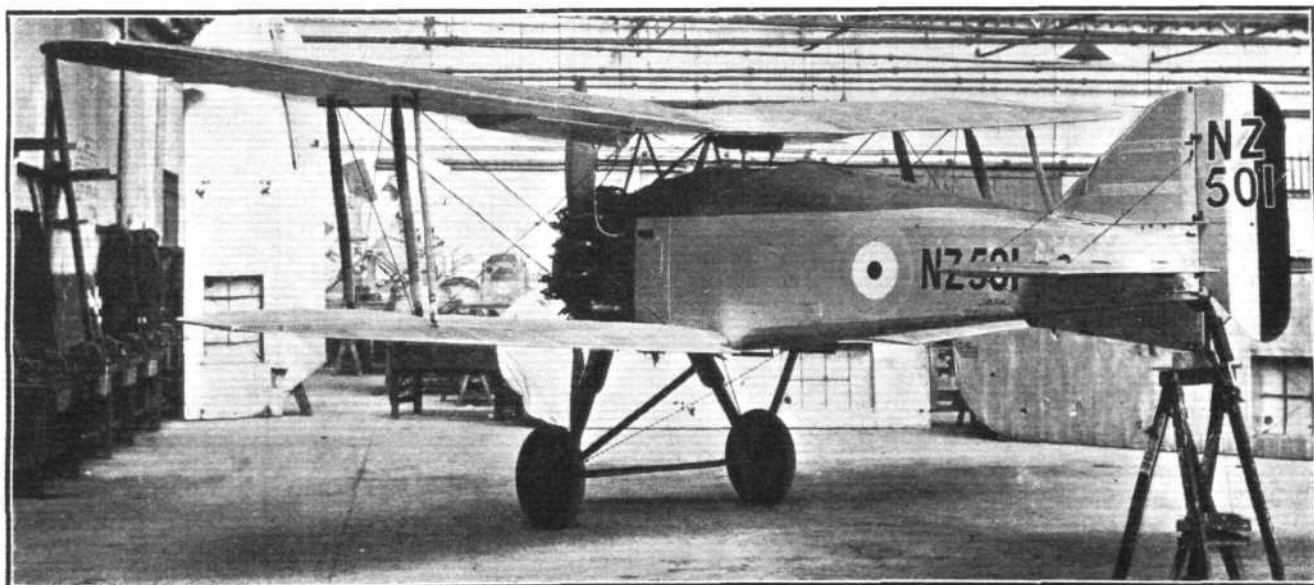
direction, and the time for the whole journey from Toulouse to Buenos Aires is scheduled at 7½ days. When night flying becomes possible, and the whole route can be covered by air it is hoped to reduce this time to 4½ days. The machine which left France on March 2 for Saint-Louis failed to arrive as expected but was located later by a relief machine about 60 miles north of Rio de Oro, where it had been forced to descend owing to lack of fuel. It resumed the journey to Saint-Louis on March 5.

## The "Los Angeles" Returns Home

THE U.S. Naval airship, "Los Angeles," which carried out a successful cruise from Lakehurst to the Panama Canal zone, arrived at Guacanayaba Bay, Cuba, last week, on the homeward trip. An exciting mishap happened on March 2, when the airship eventually arrived back at Lakehurst at 11.30 p.m. Owing to a snowstorm and high winds, the "Los Angeles" was unable to land. An attempt was made to moor the airship to the mast, but the cable snapped and after nearly an hour's fight the airship gave up the struggle and flew away towards the north. At about 4 a.m. she returned, and dropping her land lines, the ground party of 100 men proceeded to haul the ship into her hangar. Near the latter, however, a strong gust of wind swept the airship upwards, with four men clinging to the handrails of the cabin. One man fell, and was injured, but the others were hauled through the windows into the cabin. Subsequently, the "Los Angeles" was safely berthed in the hangar.

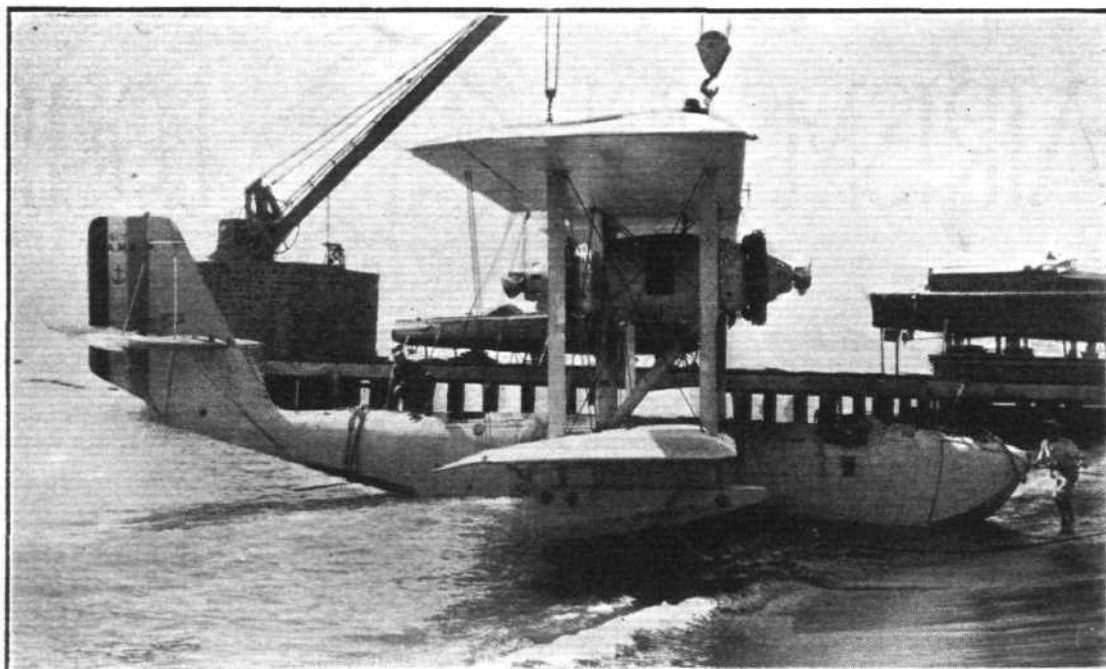
## The "Inflexible" Flies

AFTER being held up by bad weather for several weeks the first test flights were made by the Beardmore "Inflexible" at Martlesham on Monday of this week, March 5. A great deal of secrecy has surrounded this machine, which has the largest wing span of any machine ever constructed in Great Britain, the distance from tip to tip being no less than 158 ft. The "Inflexible" is fitted with three Rolls-Royce "Condor" engines of approximately 700 h.p. each, so that the total power is more than 2,000 h.p. Initially designed by Dr. Rohrbach, the well-known German designer, considerable modifications were made in the design during the period of construction at the Beardmore works at Dalmeir, Mr. W. S. Shackleton, who has now had to go to Australia on account of his health, being then chief designer. It is reported that the first test flight, carried out by Sqdn.-Ldr. Noakes, was entirely successful, and that the machine got



**GLOSTER "GREBES" FOR NEW ZEALAND:** This photograph shows the first of a batch of the latest type "Jaguar"-engined "Grebes" ordered by the New Zealand Government from the Gloster Aircraft Co.

"Jupiters" in France: The C.A.M.S. 51 flying-boat, fitted with two "Jupiter" engines, which, piloted recently by Lieut. Paris at St. Raphael, created a world's record for seaplanes, attaining an altitude of 4,684 m. (15,370 ft.) with a load of 2,000 kgs. (4,410 lb.).



off in a relatively short run, and pulled up quickly on landing. The controls were found to be satisfactory. Further tests will be awaited with interest, since there are those who hold that so large a machine—or, rather, a machine of such large span—cannot have a very great useful load. We understand that Sqdn.-Ldr. Noakes did not attempt any "crazy flying" with the "Inflexible."

### Missing Airmen Found

The crew of the machine engaged on the Canadian Government's expedition to Hudson Strait, who have been missing since February 17, when a forced landing had to be made on the ice, are now reported safe. They—F./O. A. Lewis, Flt.-Sergt. Terry, of the R.C.A.F., and "Bobby, the Eskimo" guide—managed to make their way over the ice floes safely back to their base at Port Burwell, where they arrived, after hard travelling, at midnight on March 1.

### Levine Flies 1,100 miles

MR. C. LEVINE, who flew the Atlantic last year with Clarence Chamberlin, left New York at 11.30 p.m. on March 5 in the "Miss Colombia," with Wilmer Stutz as pilot and Miss Mabel Boll as passenger, and flew to Havana, Cuba, a distance of 1,100 miles.

### R.A.F. Activity in Iraq

IBN SAUD, King of Nejd and the Hedjaz, having declared a holy war against the Mohammedans of the British-Mandated

territories of Iraq and Transjordan, R.A.F. activity in this troublesome area is now somewhat acute.

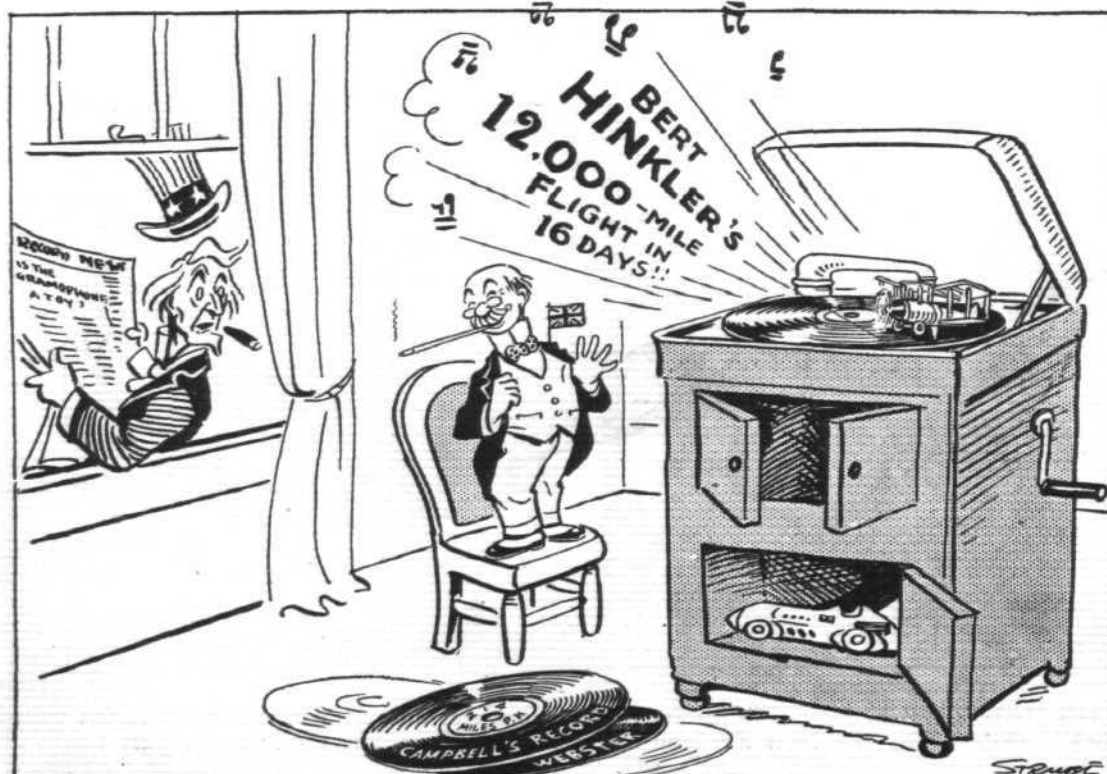
### S. American Air Line Mishap

A DORNIER-WAL flying-boat, operating on the Rio de Janeiro-Port Alegre air service, fell into the sea near Rio last week. The passengers (one an Englishman) were saved.

### Twenty Years Ago!

Extract from "The Auto" (Precursor of "Flight"), Mar. 7, 1908.

"Farman Aeroplane—a British Agency.—With noteworthy enterprise, the Motor Supply Co. have secured the agency in this country for the Farman aeroplane, and inform us that they are prepared to supply duplicates of that used by Mr. Farman, but fitted either with Renault, Antoinette, or R.E.P. engines, at a cost of £1,200 each. Would-be emulators of Mr. Farman's achievement now have, therefore, an excellent opportunity of testing for themselves whether there is anything in the art, or whether it is all in the machine, and in this connection it is very interesting to note that the new agents are willing to subject any aeroplane which they supply to a test of at least one mile in the air, and propose giving the purchaser the necessary advice and instructions, so as to enable clients to use the aeroplane themselves after a comparatively short practice."



"Fond of music, Sam? Then listen to this record."

Drawing by Strube, by courtesy of "The Daily Express."



# THE ROYAL AIR FORCE

*London Gazette, February 28, 1928.*

Group-Capt. A. Fletcher, C.M.G., C.B.E., M.C., is appointed Deputy Director of Organisation, Air Ministry, vice Group-Capt. A. B. Burdett, D.S.O.; Feb. 15. Wing-Comdr. C. G. Smith, O.B.E., is appointed Deputy Director of Equipment, Air Ministry, vice Group-Capt. G. Laing, O.B.E.; Feb. 20.

## General Duties Branch

The following are granted short service commns. as Pilot Officers for four years on active list, with effect from and with seny. of Feb. 14:—I. McL., Cameron, C. R. Clarke, G. E. Klein, J. H. Lindell, J. F. McKenna, D. T. Saville.

The following Pilot Officers are promoted to rank of Flying Officer (Jan. 30):—W. L. Freebody, K. S. Brake, L. C. Bennett, J. C. Cunningham, F. J. Moon. The following are restored to full pay from half-pay (Feb. 22):—Sgdn.-Ldr. J. J. Breen, Flying Officer L. H. Anness.

Flight-Lieut. J. R. F. Randell, D.F.C., is placed on retired list at his own

request; Feb. 29. Flight-Lieut. E. H. Bryant is transferred to Reserve, Class A; March 1. The short service commn. of Pilot Officer on probation A. D. Jones is terminated on cessation of duty; Feb. 27.

## RESERVE OF AIR FORCE OFFICERS

### General Duties Branch

Flying Officer P. R. Dawson is transferred from Class A to Class C; Feb. 28.

## AUXILIARY AIR FORCE

No. 601 County of London (Bombing) Squadron.—The following Pilot Officers to be Flying Officers:—

### General Duties Branch

H. N. St. V. Norman; Jan. 21.

### Accountant Branch

D. H. W. Arnot; Oct. 29, 1927.

### Stores Branch

Squadron Leader A. W. Smith, to Air Ministry, Directorate of Equipment, 1.2.28.

Flight Lieutenant R. D. G. Macrostie, M.B.E., to Heliopolis Details, 2.2.28.

Flying Officer A. A. Quayle, to R.A.F. Depot, Uxbridge, 21.2.28.

### Accountant Branch

Flight Lieutenant H. G. Bushell, to Station H.Q., Hinaidi, 1.2.28.

Flying Officers: H. A. Murton, to No. 13 Sgdn., Andover, 21.2.28. R. T. Carter, to Station H.Q., Hinaidi, 1.2.28.

### Medical Branch

Squadron Leader H. S. C. Starkey, O.B.E., M.D., M.A., to H.Q., Coastal Area, 18.3.28.

Flight Lieut. J. D. Leahy, M.C., M.B., B.A., to R.A.F. Station, North Weald; 15.2.28.

Flight Lieutenants: C. S. de Sagundo, O.B.E., V.D., M.B., B.S., to Superintendent of Reserve, Hendon, 13.3.28. J. D'I. Rear to R.A.F. General Hospital, Iraq, 21.1.28.

Flight Lieut. (Dental): (Hon. Sgdn.-Ldr.) E. A. Wheeler, to H.Q., Halton; 11.2.28. A. B. H. Cole, to Marine Aircraft Experimental Estab., Felixstowe; 14.2.28.

Flying Officers: J. P. Hederman, to remain at Schl. of Army Co operation, Old Sarum, instead of to R.A.F. Depot, Uxbridge, as previously notified. W. Heron, M.B., to Medical Training Depot, Halton; 1.2.28. J. F. McGovern, M.B., to Med. Training Depot, Halton; 1.2.28.

Flying Officers: M. O'Regan to R.A.F. General Hospital, Iraq, 21.1.28. J. Hill, M.B., to Station H.Q., Hinaidi, 21.1.28. G. S. Strachan, M.B., to R.A.F. Depot, Uxbridge, 20.2.28.

Flying Officer (Dental): A. P. McClare, to R.A.F. Depot, Uxbridge; 18.2.28.

## NAVAL APPOINTMENT

The following appointment was made by the Admiralty on February 13:—Lieut. (Flying Officer, R.A.F.): J. E. Burstall, to *Furious*, and for full flying duties in 461 Flight; Jan. 9.

## IN PARLIAMENT

### Airship Guarantee Company

MR. ROSE, on February 16, asked the Secretary of State for Air whether the Airship Guarantee Company are negotiating for the re-purchase of Airship R.100; and, if so, will he give assurances that the Airship Guarantee Company will be held rigidly to the terms of the 1924 contract?

SIR S. HOARE: The company have indicated that they anticipate that it will be desired to exercise the option to purchase the R.100 given them in the original contract. The company have not suggested, and I have no intention of accepting, any modification of the purchase price fixed by that contract.

MR. ROSE asked whether the Airship Guarantee Company have received any private capital beyond the original £5,000 upon which it was founded in 1923; and whether he can state the amount, if any, so subscribed?

SIR S. HOARE: I understand that the authorised capital of the company has been increased to £100,000, of which £50,000 has been subscribed.

MR. ROSE asked approximately the actual pay loads which Airships R.100 and R.101 will be capable of carrying if and when completed for service?

SIR S. HOARE: According to the latest figures furnished me by the Airship Guarantee Company, the substantial accuracy of which I have no reason to question, the R.100 should be capable of carrying out a non-stop voyage from England to Egypt, which will be the first stage of a normal service to the East, with a paying load of approximately 100 passengers with luggage, and, in addition, 10 tons of mails and freight. In the case of the R.101, with a view to securing the maximum technical advance in design, certain special features are being incorporated which will involve some sacrifice in paying load, and, though it is clear that there will be a satisfactory margin available for passengers, freight, etc., I am not prepared to give any corresponding estimate until her construction is further advanced.

### Mr. Hinkler's Flight

SIR HARRY BRITAIN, on February 27, asked the Secretary of State for Air whether he is in a position to furnish any further information with regard to Mr. Bert Hinkler's flight to Australia beyond what has already appeared in the Press?

SIR SAMUEL HOARE: I cannot at present add very much to the information which has appeared, since I am glad to say the Press have given Mr. Hinkler's outstanding achievement the prominence which it undoubtedly deserves. It may, however, interest the House to hear that the flight established several records. Mr. Hinkler achieved the fastest flight to date between England and Australia, shortening the time taken by Sir Ross Smith in 1919 by between 12 and 13 days; the longest solo and the longest light aeroplane flights yet made; and the first non-stop flight to Rome, whilst all places beyond India were reached in a shorter time than has been achieved by any other form of transport. The total flying time was 134 hours, so that the flight would have taken 5 days 14 hours if it had been made continuously flying by day and night. Taking the total time spent on the flight, including

nights and halts in the day-time on the ground, the average speed per hour throughout was well over 30 miles, whilst taking the time spent in the air only, it works out at an average of about 89 miles per hour. Further, 12,000 miles were covered without any repairs, a striking testimony to the reliability of machine and engine. One of the most striking features of the flight is that the machine employed was a standard Avro "Avian" with a Cirrus engine which has been in use since 1926 and the only alteration made prior to the flight was the incorporation of extra tankage. A machine of this type costs complete, apart from the extra tanks, only some £730, and an approximate estimate of the cost of the flight in terms of the petrol and oil consumed—as I have already said no repairs were carried out—is £50. These figures are a striking indication of the great potentialities of aircraft for improving communications in the vast stretches of the Empire in which other means of communication are as yet non-existent or relatively undeveloped.

### Air Surveys, Colonies and Mandated Territories

SIR R. THOMAS asked the Secretary of State for the Colonies what work is being done officially to survey by aerial photography unmapped or partially-mapped regions in the Colonies and mandated territories?

MR. AMERY: The Government of Northern Rhodesia is employing the Aircraft Operating Company, Ltd., in making an air survey of the Zambesi waterway in Barotseland between Katombora and Barouale, including the Lungwo-Bungu river and the Kabompo river, as far as the Lungu confluence. This company is also supplying the Northern Rhodesia Government with maps made from aerial photographs of the highly mineralised area around N'changa, near the Northern Rhodesia-Congo boundary. In addition, the company is making plans, from aerial surveys, of the three principal townships in Northern Rhodesia: Livingstone, Lusaka, and Broken Hill. I understand that the Air Survey Co., Ltd., has recently completed a survey of the Rejang delta in Sarawak, on behalf of the Government of that State, the total area surveyed being 1,800 square miles. This company has also surveyed some 1,700 square miles of territory for the British Malayan Petroleum Company, Limited, in Sarawak and Brunei with the consent of the respective States. I understand, also, that the Iraq Government have recently concluded a contract with a British firm for an aerial survey of certain lands in Iraq.

### Aircraft Carriers

MR. RENNIE SMITH, on February 28, asked the First Lord of the Admiralty if the total tonnage provisions for aircraft carriers of the Washington Agreement were intended to cover every size of aircraft carrier?

MR. BRIDGEMAN: The total tonnage provisions include only vessels of war whose tonnage is in excess of 10,000 tons, which are designed exclusively for carrying aircraft, and are such that aircraft can be launched therefrom and landed thereon.

MR. SMITH: Does that mean the building of vessels of under 10,000 tons for carrying aircraft will be permitted under the Washington Agreement?

MR. BRIDGEMAN: Subject to the conditions which I have read out.



## R.A.E.S. AND INST.AE.E.

### Official Notices

The annual general meeting will be held on March 27, at 5.30 p.m., at the offices of the Society, 7, Albemarle Street, London, W.1.

**Agenda.**—(i) To receive and deliberate upon the Report of the Council on the state of the Society, and the balance sheet of Aerial Science, Ltd., as printed in the Journal of the Royal Aeronautical Society with which is incorporated the Institution of Aeronautical Engineers for March, 1928.

(ii) To receive the report of the scrutineers appointed by the meeting to check the ballot papers and receive the list of names of those who have been elected to fill the vacancies on the Council.

(iii) To elect the Auditors for the ensuing year.

(iv) To consider any other business of which proper notice has been given.\*

(\* Any voter desirous of proposing any motion before the annual general meeting shall give notice in writing to the secretary, which shall be received by him by noon on March 13, 1928.)

The lecture by Dr. Rudolf, on "Testing of Materials Used in Aircraft Construction," has been postponed from March 15 to a later date in the session, as owing to very heavy pressure of work, Dr. Rudolf has not been able to prepare all the necessary material from the very wide experience which he has had.

Flight-Lieut. B. C. H. Cross, D.F.C., will, however, give a lecture on this date, at 6.30 p.m., at the Royal Society of Arts, 18, John Street, Adelphi, W.C.2.

The title of his lecture will be "Flying-Boat Maintenance and Equipment." Flight-Lieut. Cross was a member of the Flying Boat Cruise in the Baltic of last year. He has had very considerable experience of flying-boat operation, and as a result of his experience he will raise a number of points in his lecture about the design and construction of flying-boats, and particularly how the general equipment of flying boats can be improved for long-range work. The lecture will be very fully illustrated, and it is hoped that a cinematograph film will be shown in the course of the lecture.

J. LAURENCE PRITCHARD,  
Secretary.

## AIR MINISTRY NOTICES

### NOTICE TO GROUND ENGINEERS

#### Avro 504N "Lynx" Modifications

1. The modifications described herein must be embodied in all existing Avro 504N "Lynx" aircraft before any such aircraft is submitted for re-inspection for renewal of the Certificate of Airworthiness.

2. Modification No. 19.—The present design of petrol-cock control handle in the front cockpit is unsuitable owing to the ease of accidental operation. This handle must be replaced by a knurled disc or similar type of handle.

3. Modification No. 21.—The altitude control lever is unsuitable in its present form, due to the facility with which it can be accidentally operated. The lever must be shortened by approximately 2 inches.

4. No certificate of airworthiness will be issued or renewed in respect of any Avro 504N "Lynx" aircraft unless the above modifications have been embodied.

5. Drawings of these modifications can be obtained on application and prepayment from the Drawings Library, Air Ministry, Kingsway, London, W.C.2.

(No. 1 of 1928.)

#### Aircraft Carriers of the World

THE official Return of Fleets issued on March 1, shows says *The Times*, that the new Japanese aircraft-carriers "Akagi" and "Kagi" are to carry an armament of ten 8-in. and four 4.7-in. guns, in addition to twelve 4.7-in. anti-aircraft guns and six torpedo tubes. They will thus be the most powerfully-armed carriers in the world, with an armament equal, if not superior, to that of any cruiser of which particulars are given in the Return. The next most powerfully-armed carriers are the "Lexington" and "Saratoga," in the United States Navy, which carry eight 8-in., twelve 5.5-in. A.A., four smaller guns, and four torpedo tubes. The French aircraft-carrier "Bearn," completed in 1927, has a main armament of eight 6.1-in. guns. In the British Navy the five completed aircraft-carriers each have different armaments, the "Eagle" carrying nine 6-in., the "Furious" ten 5.5-in., the "Hermes" seven 5.5-in., the "Courageous" sixteen 4.7-in., and the "Argus" only the anti-aircraft battery of six 4-in. high-angle guns. The "Eagle," "Furious," and "Hermes" have also 4-in. anti-aircraft guns in addition to those mentioned, but no British carrier has any torpedo tubes.

#### Italy Training Afghan Pilots

A PARTY of twenty-five Afghan youths have left their country for Italy, where they are to undergo a course of training as pilots for the Afghan Air Force. A number of pilots recently trained in Russia have now returned to Afghanistan.

#### Crowded Croydon

THERE were so many air passengers waiting at Croydon air port on February 22 that two extra machines had to be brought into service. The traffic constituted a record for any February day since the services were commenced in 1919.

#### A Japanese Fatality

WHILE making a trial flight between Tokio and Omura, on February 29, an aeroplane crashed and caught fire. Mr. Yukichi Goto (who proposed to attempt a trans-Pacific flight), one of the occupants, was burnt to death, but two others escaped.

#### Air Travel

SIR SEFTON BRANCKER, Director of Civil Aviation, lectured at the Portsmouth Port Library on "Commercial Air Routes," on February 22. He said that although Britain had made considerable progress in organised air transport during recent years, we were still a long way behind Germany and America, the reason for this being the want of money. Last year, about 20,000,000 miles were flown throughout the world. In England, the total was 17,600 miles, and to-day we only had 1,292 miles of organised air routes, with 175 miles in Europe. Australia had done extremely well, having about 8,000 miles of routes; Canada was just beginning, but other parts of the Empire had done nothing. America had between 20 and 25 air transport companies in operation, and it was possible to get from New York to San Francisco in 32 hours. In aircraft itself, England was very good, Germany being our greatest rival, whilst America eventually would be.

## PUBLICATIONS RECEIVED

*Sonnets and Some Others.* By Clarence Winchester. The Wessex Press, Taunton. Price 2s. 6d. net.

*La Vie des Hommes Illustres de l'Aviation.* By Jacques Mortane. G. Roche D'Estrez, 5, rue de l'Isly, Paris. Price 15 francs.

*Report on the Health of the Royal Air Force for the Year 1926.* Air Publication 1297. H.M. Stationery Office, Kingsway, London, W.C.2. Price 2s. 6d. net.

*The Journal of the Royal Aeronautical Society.* No. 205. Vol. XXXII. January, 1928. Royal Aeronautical Society, 7, Albemarle Street, London, W.1. Price 2s. 6d.

## NEW COMPANY REGISTERED

SCOTTISH FLYING CLUB, LTD., 101, St. Vincent Street, Glasgow, C.2. A company limited by guarantee, without share capital. Objects: to carry on business as indicated by the title. The directors are:—G. C. Walker, H. W. Smith, A. M. Dunlop, A. N. Kingwill, B. R. Millar, K. McIntosh, Lord Weir, J. G. Weir, H. E. Yarrow, G. F. Luke, J. D. Cornack, and H. L. Murray Philipson. Secretary: Harry W. Smith.

## AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

### APPLIED FOR IN 1926

Published March 8, 1928

- 25,385. V. C. RICHMOND and G. H. SCOTT. Airships. (285,109.)
- 27,881. H. E. TAFT. Propelling airships, planes, etc. (285,117.)
- 30,265. G. G. PARNALL and H. BOLAS. Control mechanism peculiar to aircraft. (285,190.)
- 31,195. J. ALLEN. Hydroplane boats, seaplane floats, etc. (285,197.)

### APPLIED FOR IN 1927

Published March 1, 1928

- 6,214. NIEUPORT-ASTRA. Wing surfaces. (267,503.)
- 9,952. DR. C. DORNIER AND DORNIER-METALLBAUTEN GES. Arrangement of driving units for large aeroplanes. (272,458.)
- 10,643. B. NAGLER. Flying machines employing rotating wing systems. (280,849.)
- 24,917. ROHRBACH METALL-FLUGZEUGBAU GES. Seaplanes. (277,978.)

Published March 8, 1928

- 201. D. KAY. Means for controlling angle of incidence of aero revolving blades or wings and propellers. (285,213.)
- 1,136. A. HONEY. Propellers, airscrews, etc. (285,219.)
- 8,856. J. S. CANDRAY. Lighter-than-air craft. (285,273.)
- 15,450. M. A. BLAIN. Variable-pitch screws. (272,530.)
- 19,130. M. LETORD. Device for rapidly emptying the petrol tanks of aeroplanes, etc. (285,312.)

## FLIGHT,

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